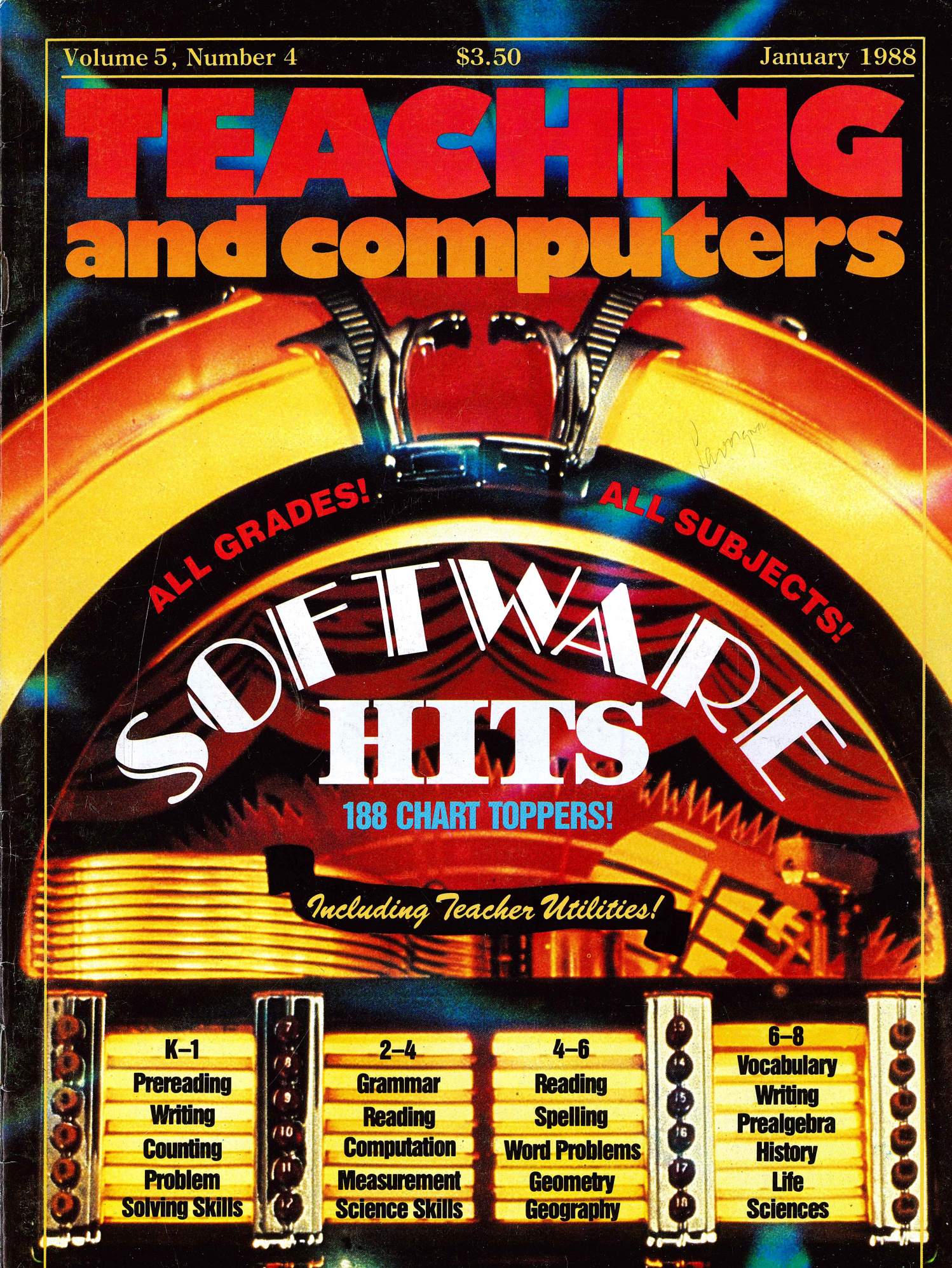
Volume 5, Number 4 $3.50 January 1988

TEACHING and computers



SCHOLASTIC

For your next IBM presents its

The newest member of the IBM Personal System/2 family was made for a very special desktop: the one in the classroom.

It's the Model 25. It brings our newest technological advancements to students at every grade level. It packs the power of the IBM Personal System/2 family into a single, space-saving unit. It has a full-function, easy-to-understand keyboard, as well as advanced graphics and animation that are as colorful as a student's imagination. Of course, that's not all it has.

IBM courseware.

The IBM educational software library was designed and developed by educators.

Furthermore, it was tested by a demanding group of critics: teachers and students, who gave it high marks.

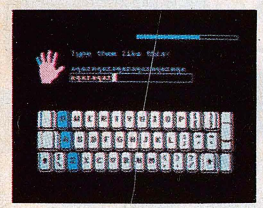
We offer an extensive selection of high quality courseware that covers all the basic skills: math, science, reading, language arts and business education. The Model 25 also runs a wide selection of courseware

generation, next generation.

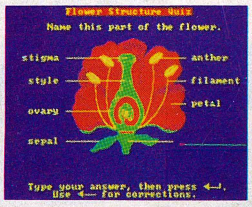
developed by independent software authors.

IBM networking.

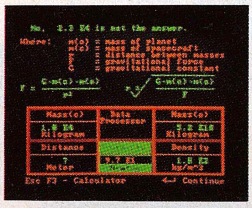
Through the IBM classroom network, the teacher's computer can be linked to each student's. This, in turn, allows the teacher to give each student specific instructions, as well as distribute the day's work electronically. Also, the teacher knows which program a student is using and how fast they're working.



Typing for Beginners



Biology Series



Physics Series

The IBM network helps students get right to work on the right subjects, and advance at their own pace.

Our network even has benefits that go beyond the classroom, all the way to the administration office. The teacher can have a direct link to the office which can make daily chores, like taking attendance, effortless.

The most important result is that teachers will have more time to teach and students will have more time to learn.

IBM makes it easy.

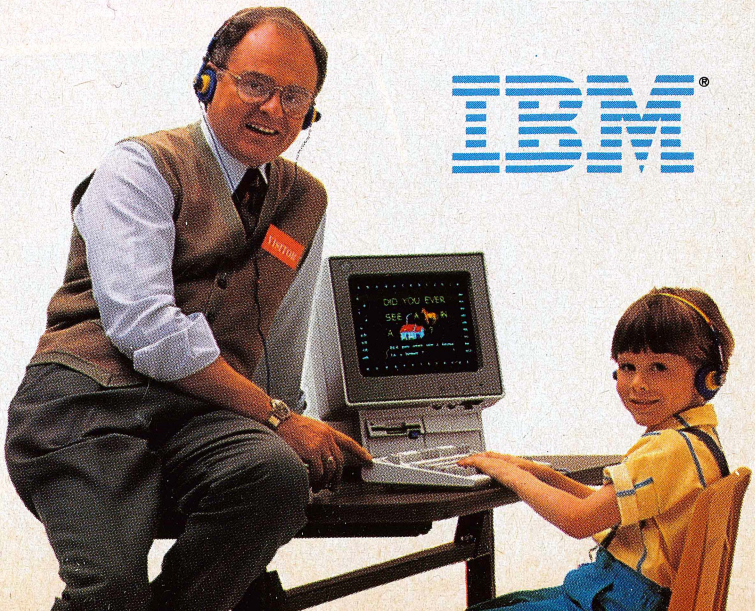
The Model 25's disk drive, processor and monitor are built into a single compact unit that fits nicely on a student's desk. So set-up is really a one-step process, you just plug it in and go.

We also make it easy to buy. We've reduced the price of the Model 25 for faculty and staff, plus we offer schools special prices on the IBM Personal System/2 family.

Of course, you get more than a box with IBM; you also get the support and service you'd expect from IBM. We even have a team of Education Instruction Specialists (teachers working with IBM), who offer training and support to help you get off to a good start.

With the IBM Personal System/2 family, you have all you need to run a model school system.

If you'd like to see how easy it is to bring your next generation and our next generation together, call 1-800-IBM-2468, ext. 25. Or write to us at Dept. 25, 101 Paragon Drive, Montvale, NJ 07645, for more information.



© IBM 1987

Circle 29 on Product Info Card.

It pays to sell the very best.

Nestle•Beich Box Chocolates are the very best ways to raise $450 to $1,800 (or more!) fast and easy. The reason is Quality.

Superior ingredients. Outstanding packaging. Surprising variety. And unexpected value. These are the qualities your customers expect. They are the very best ways your organization can say, "Thank you!"

It pays in other ways, too. Special pre-order and incentive programs. Fast delivery from nearby ServiceCenters. Professional help from local representatives.

How much will it pay? **Call today!**

Nestlé·Beich

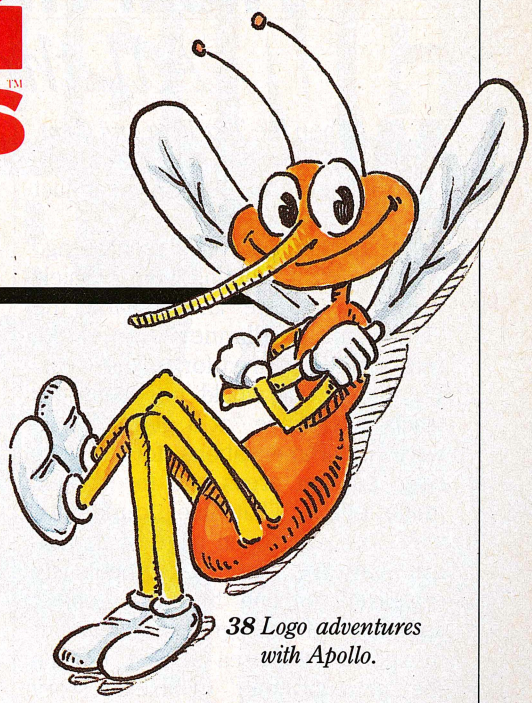
Call Toll-Free 1-800-431-1248

In Illinois call 1-800-523-1957 Ask for Operator 2418

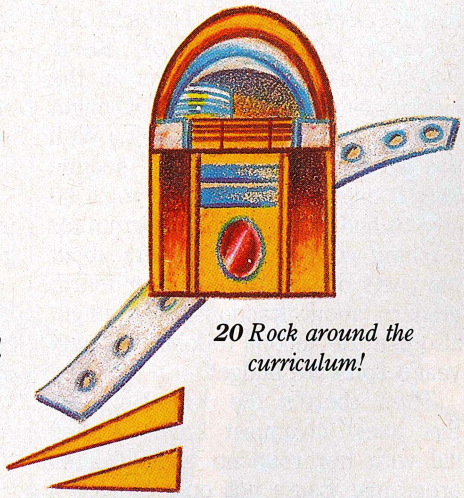
Circle 23 on Product Info Card.

TEACHING and computers™

Published by Scholastic Inc.
January 1988 Vol. 5, Issue 4



38 Logo adventures with Apollo.



20 Rock around the curriculum!

FEATURES:

20 Software Hits
Looking for computer programs that harmonize with the way you teach? Here are 188 of our all-time favorites, charted out for you by major subject, grade level, even specific skill area!

38 The Golden Spiral
In this math/science unit, natural wonders take shape when the Logo turtle and his mosquito friend Apollo meet a chambered nautilus. A read-aloud story with interactive Logo illustrations.

47 Electronic Lesson Plans
Language Arts: New Year's Verb Tenses • **Math:** Welcome to Coiney Island • **Social Studies:** Story Tree Biography • **PLUS** Computer Challenges for Kids

CLASSROOM MATERIALS:

16 The Think Tank
A series of task cards focusing on problem solving skills. This month, the cards teach analytical skills.

27 *T&C's* Poster
"Weather Wise." Just right for January, our poster combines computer activities, cloud watching tips, weather lore, and more!

27 *T&C's* Poster Worksheets
Teacher's Notes and reproducible worksheets that relate to the poster.

COLUMNS AND DEPARTMENTS:

6 Update
News for computer-using teachers.

8 Classroom Happenings
What's happening in computer classrooms.

10 The Well-Managed Classroom
Grading the gradebook programs.

12 First Steps
New Year's flowcharts.

19 Bookshelf
Books for teaching keyboarding.

56 Micro Ideas
Quick computer tips and activities.

59 Teacher's Helper
Program conversions.

Cover Photo: © The Image Bank

TEACHING AND COMPUTERS® (ISSN 0738-6087) is published six times during the year; monthly October and January, bimonthly August/September, November/December, February/March and April/May by Scholastic Inc., 730 Broadway, New York, NY 10003-9538 for $23.95 per year, $12.95 for five or more subscriptions to the same address. Single copy, $3.50. (For Canadian pricing, write our Canadian office, address below.) Second-class postage paid at Monroe, OH 45050-2700. POSTMASTERS: Send notice of address changes to Office of Publication, TEACHING AND COMPUTERS®, 351 Garver Rd., Box 2700, Monroe, OH 45050-9998. Address subscription correspondence to TEACHING AND COMPUTERS®, P.O. Box 2040, Mahopac, NY 10541. Canadian address: Scholastic-TAB Publications, Ltd., Richmond Hill, Ontario L4C 3G5; in the United Kingdom: Scholastic Publications, Ltd., Westfield Rd., Southam, Leamington Spa, Warwickshire, England DV330JH; in Australia: Ashton Scholastic Pty., Ltd., P.O. Box 579, Gosford, N.S.W. 2250, Australia; and in New Zealand: Ashton Scholastic Ltd., 7-11 Fairfax Ave., Penrose, Auckland 6, New Zealand. Available on microfilm through Xerox University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48106. Also available on microfiche through Bell & Howell Micro Photo Division, Old Mansfield Rd., Wooster, OH 44691. Printed in U.S.A. Copyright © 1988 by Scholastic Inc. All Rights Reserved. Member, Audit Bureau of Circulations. Permission is granted to make machine copies of material in this issue for classroom use only. **Permission to reproduce material in this issue, in whole or part, in any form or format, for all other uses, must be requested from the publisher.**

FROM THE EDITOR

All the Best

When the *Teaching and Computers* staff takes on a project, we don't take it just halfway.

For instance, several months ago we asked contributing editor Shiela Swett to update and expand the "Curriculum Planner" software charts she prepared for us last year. We thought it would be useful for teachers to have "at a glance" software recommendations for all four basic content areas and for various grade levels. What Shiela came back with was page upon page of thumbnail software reviews, scrupulously organized not only by major subject and *four* different grade ranges, but by specific skill area as well. (That's the "prize printout" of Shiela's story that art director Shelley LaRoche and our new production editor, Kevin Powers, are consulting over in the picture below. They think it might have set a few records for heft.) With this special "Software Hits" section (which begins on page 20), you'll be able to find just the right program for teaching your second graders about the parts of speech, and your fourth graders about fractions. You might also use the section to lobby for next year's software budget!

Then there's the whiz-bang job that guest columnist Laura Bullock did with her roundup of gradebook programs. Laura not only created a fictional 28-student grade roster to test out the various programs — she challenged the programs on their own terms and actually *graded* their performance. Her "report card" on gradebook software begins on page 10.

T&C's extended "staff" has always included some of the most thoughtful, creative education writers across the country; Dianne Hyer and Roger Eckhardt are among them. When Dianne and Roger submitted "The Golden Spiral" to *T&C,* it was one of the most lovingly prepared manuscripts we'd seen: in addition to model illustrations, they sent the complete IBM Logo program on disk as well as on paper, *with* Apple Logo conversions. The resulting teaching unit, which begins on page 38, is a fascinating amalgam of math and science that's sure to charm your students. (You can expect to see more of Dianne and Roger's creations — including Apollo the mosquito — in future issues of *T&C).*

Why are the writers, editors, and production staff at *T&C* so willing to go above and beyond the call? Because we know you are, too. Making the new technology work in your classroom takes a lot of extra effort on your part. We're with you all the way.

Happy New Year!

M. Revenaugh

What's your guess? Art director Shelley LaRoche and production editor Kevin Powers weigh the cover feature, "188 Software Hits."

TEACHING and computers

PUBLISHED BY SCHOLASTIC INC.

Maurice R. Robinson,
Founder of Scholastic Inc., 1895-1982

EDITORIAL

Offices: 730 Broadway, New York, NY 10003

Editorial Director, *Teaching and Computers; Electronic Learning:* Jack L. Roberts

Managing Editor: Mickey Revenaugh

Associate Editors: Jackie Glasthal, Kristan Meyer

Production Editor:
Kevin Powers

Contributing Editors:
Shiela Swett, Mary Dalheim

Art Director: Shelley LaRoche

PUBLISHING/ADVERTISING

Associate Publisher: Bruce J. Gardner

Eastern Representative: Lewis Edge, and Associates, Inc., 372 Wall St., Princeton, NJ 08540, (609) 683-7900

New York Office: 730 Broadway, New York, NY 10003, (212) 505-3482

Midwest Manager: Ray Barnes

Midwest Region Sales Office:
Heather Yamashiro
400 N. Michigan Ave.
Chicago, IL 60611, (312) 467-6888

Western Region Sales Office:
Susan Flora
4640 Admiralty Way
Marina del Rey, CA 90291
(213) 827-9183

Classified Advertising Director
Greg Rapport, (212) 505-3587

Classified Sales:
Philip Ehrlich, (212) 505-3501

Special Projects Manager:
Corona Gray-Moore, (212) 505-3485

Publishing Consultant:
Lewis Edge

SCHOLASTIC MAGAZINES FOR TEACHERS GROUP

Publisher: Shirrel Rhoades

Group Advertising Director:
Paul W. Reiss

Director, Product Production:
J. G. Brownell

Manager, Production Operations:
Gay Siccardi

Business Manager: Robert Bellone

Group Circulation Director:
Deede Dickson

Circulation Director: Terry Perkins

Circulation Promotion Director:
Irv Cohn

Head Promotion Design Director:
Dale Moyer

Public Relations Director:
Jeanne Krier

Systems Manager: David Hendrickson

Production Manager: Richard Walsh

Technical Consultant: Lance Paavola

Chief Librarian: Lucy Evankow

Photo Researcher: Grace How

Permissions: Nancy Giraldo

TEACHING AND COMPUTERS ADVISORS

ADVISORY BOARD: Ann Dana, Microcomputer Consultant for School District 181 in Hinsdale, IL • Carol Edwards, Director of Project MiCRO, Southern Coalition for Educational Equity, Atlanta, GA • Beth Lazerick, Computer Education Specialist, Baltimore, MD • Tom Lough, Editor, *National Logo Exchange,* Charlottesville, VA • Steve Tipps, West Professor of Education, Midwestern State University, Wichita Falls, TX.

ABC

COMPUTER-USING TEACHER

Exclusive interview with
BARBARA MORGAN
Next Teacher in Space

In the February/ March issue of

TEACHING and computers

UPDATE

NEWS FOR COMPUTER-USING TEACHERS

STORY WRITING CONTEST

If you own *Story Tree* (Scholastic) — writing software that helps kids organize and write interactive adventure, mystery, and other types of stories — you won't want your students to miss the fourth annual *Story Tree* Writing Contest.

Children enter the contest by submitting a printout of a story they have written with the help of *Story Tree*. Prizes for the contest will be awarded to the best written stories in two divisions: elementary (grades four through six) and junior high (grades seven through nine). The author of the grand prize-winning story in each of these divisions will receive an Apple computer. Each of the two winning authors' teachers will also receive an Apple for classroom use. In addition, 10 stories will be selected for honorable mention in each division. These winners will each receive $100 worth of Scholastic software.

Entry deadline is April 15, 1988. Winners will be announced in May. For more details about entering the contest, write to: Scholastic Software, *Story Tree* Contest, 730 Broadway, New York, NY 10003.

SPRINGBOARD ANNOUNCES MEMBERSHIP PLAN

With the help of a new Annual School Membership Program, educators can acquire multiple copies of Springboard software at greatly reduced rates. With a "membership" to any Springboard program, a school can purchase unlimited copies of that program at $10 per disk. Each booklet or manual that schools purchase to accompany their selected program will cost an additional $8.

As a rule, the price of membership to a program is approximately double the suggested list price of the program. Memberships are good for one year, and are renewable. At the end of the year the school must either renew its memberships, or return the disks and the manuals that were purchased as part of the membership program.

Each program in Springboard's line is available for membership. There is a discount available for multiple memberships: memberships to any five programs will net a 10 percent discount; memberships to 15 programs bring a 15 percent discount. Memberships to the entire line of 24 programs result in a 25 percent discount plus automatic membership for the rest of the year to any new programs that Springboard might release.

For more information about Springboard's Annual School Membership Program, contact Springboard Software, 7808 Creekridge Circle, Minneapolis, MN, 55435, or you can call the Springboard educational sales department at 800/445-4780.

(Circle 146 on Product Info Card.)

ATARI EDUCATIONAL SOFTWARE GIVEAWAY

While supplies last, Educational Computer Workshop is giving away over $120,000 worth of educational software to Atari computer users. The software is all from ECW's "Success With Math" series of programs.

Available titles are: *Addition and Subtraction; Multiplication and Division; Fractions: Addition and Subtraction; Fractions: Multiplication and Division; Decimals: Addition and Subtraction; Decimals: Multiplications and Division;* and *Linear Equations.*

Each of these titles has a retail value of $29.95. To receive any of them, enclose $4 per software title to cover shipping and distribution costs, and send it to: ECW Atari Software Giveaway, P.O. Box 408, Great Falls, VA 22066. Specify the specific title(s) that you want.

SOFTWARE PIRACY: ARE PARENTS LIABLE?

Can parents be held legally responsible for acts of software piracy committed by their children? Jonathan Wallace, a lawyer representing the plaintiff in Weaver *vs.* Doe, a case pending in federal court in New York, believes they can.

Weaver, the plaintiff in the case, owns the copyright for a commercially distributed card-playing simulation called *Cards* for the Atari ST computer. The teenage defendant allegedly operated a bulletin board system from which users could download *Cards* and other copyrighted programs. Although this is not the first time that a software company has filed suit against a "pirate," this is one of the first cases in which the pirate's parents have also been sued.

"Our argument," says Wallace, "is that a parent who supplies the computer equipment and telephone line used to operate a pirate bulletin board, contributes to the copyright infringement. Since teens usually have no assets with which to pay a judgement, holding the parents responsible will give a strong incentive to families not to condone this type of behavior."

Although a trial date has not been set, Wallace expects the case to come to court early this year.

LOTS GOING ON AT TERRAPIN!

Terrapin Inc., a publisher of the original Logo computer language — and the only version that provides both 64K and 128K versions on one disk — is offering new incentives to Logo language users. Among recent Terrapin announcements are the following:

- ***A contest for educators*** who have created innovative ways of using Logo in the classroom. Three grand prize winners will be awarded $500 worth of Terrapin software and curriculum materials. Five runners-up will receive Terrapin's new *Logo Data Toolkit.*

The contest deadline is January 31, 1988. Winners will be notified by February 28, 1988. To enter, submit a one to two page description of your project, along with the following information: the goal or objective of the project, the age group or skill level required, the subject area, length of time necessary to implement the project in a classroom, materials needed, and the project's connection with overall curriculum or subject area objectives. If Logo procedures are a part of the project, a disk of these should be included.

Entries will be judged on originali-

UPDATE

ty, ease of implementation, simplicity of use, and opportunity for individual and/or group exploration.

- ***A loaner program*** allowing educators to borrow Terrapin products at no charge for inservice training, workshops, or conference presentations.

Each loaner package — available for Apple, Commodore, or Macintosh versions of Logo — is individually designed to fit your workshop or training setting. In return for the loan, all you need do is fill out an evaluation form and send it back with the Terrapin products at the end of the loaner period.

- ***Site licenses*** of Terrapin Logo for Apple, Commodore and Macintosh computers. Schools obtaining a Logo site license from Terrapin receive copyable language and utility disks and complete documentation. The *LogoWorks: Lessons in Logo* student book and teacher's guide are included with the Commodore and Apple site license packages, along with a supply of Quick Reference Cards and a subscription to the newsletter *Terrapin Times*.

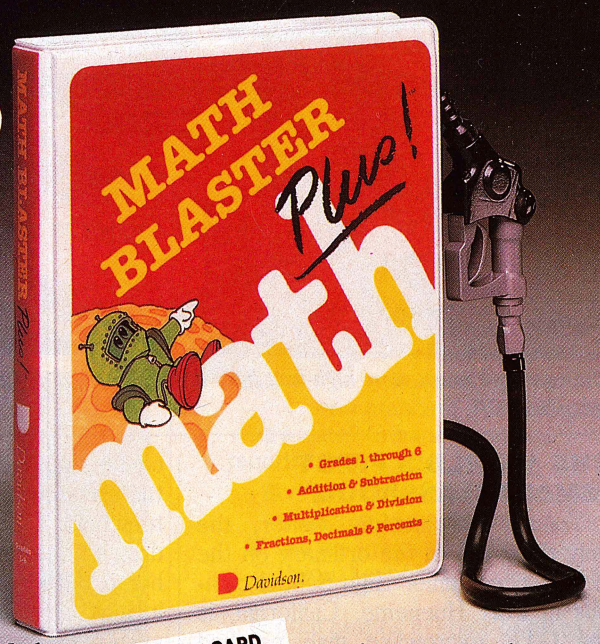
The one-time site license fee is $299 for Commodore Logo, $399 for Apple and Macintosh versions. Schools may obtain site licenses for two versions of Logo at $450, or all three site licenses for $500. Schools that have previously purchased lab packs of Terrapin Logo will be offered a reduced site license fee ranging from $100 to $200.

- ***Take-Home Paks.*** Groups of ten or more students and/or teachers can purchase individual Terrapin Logo disks for their home use at a cost of $30 per person — a savings of approximately 70 percent. Each Take-Home Pak comes with a language disk, utility programs, a quick reference card and a warranty card. By returning the warranty card, a take-home pak purchaser is eligible for all upgrades, replacements, and backup disks.

For more information on Take-Home Paks, or any of the other offers listed above, write to: Terrapin, Inc., 376 Washington St., Malden, MA 02148; 617/322-4800. ■

HIGH GRADE FUEL.

NEW



Davidson's new Math Blaster Plus is the highest octane math software program you can buy for your kids. Built by teachers to grow with kids—from addition and subtraction to multiplication, division, fractions, decimals, and percents.

Math Blaster Plus pumps in confidence and motivation, prints out Certificates of Excellence, and improves kids' grades from 1st grade through 6th.

With four motivating learning activities, exciting graphics and color, and a new action-packed arcade-style game, Math Blaster Plus makes learning fun. And, it has new pull-down menus that are easy to use with keyboard or mouse.

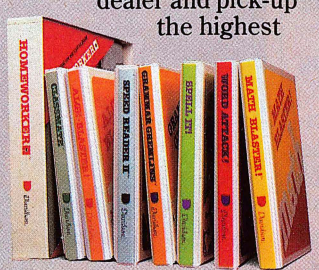
So pull into your local software dealer and pick-up the highest performance math software around—Math Blaster Plus.

REPORT CARD
MATH A
READING A
SPELLING A

Call us toll-free for more information and for the name of the Authorized Davidson Dealer nearest you.

800-556-6141 or **213-534-4070**
(California residents)

Grades 1 through 6.
Available for Apple® and IBM®
$49.95 suggested retail.



Return this coupon to enter our monthly drawing for $100 worth of free Davidson software.* We'll also send you more information about all the high grade programs available from Davidson.

Name _____

Address _____

City, State, Zip _____

Type of Computer _____

Davidson & Associates, Inc.
3135 Kashiwa St. Torrance, CA 90505

*NO PURCHASE NECESSARY. Offer ends Dec. 31, 1988. Void wherever prohibited or restricted by law. Odds of winning will be determined by total number of entries received.

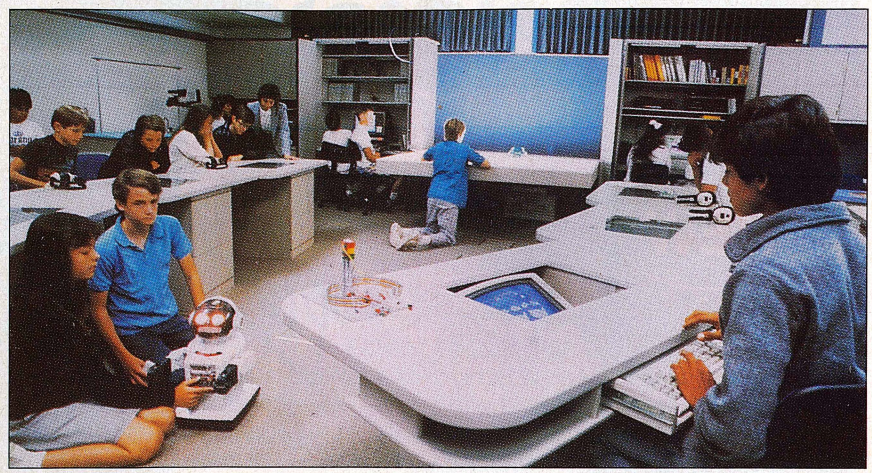
TC 1/88 · ©1987 Davidson & Associates, Inc.

Davidson.

Circle 14 on Product Info Card.

CLASSROOM HAPPENINGS

WHAT'S HAPPENING IN COMPUTER CLASSROOMS



You can't get much more high-tech than this: E. O. Green Junior High School in Port Hueneme, CA.

THE WORLD'S FIRST "SMARTCLASSROOM"

To an unsuspecting visitor, the only thing out of the ordinary on the E.O. Green Junior High School campus in Port Hueneme, California, is the GTE microwave dish perched atop the school's science building. That building houses the world's first "SmartClassroom," just opened this past summer.

At the heart of the science facility is an interactive computer network, connecting teacher and students in the classroom, and providing a home-to-school connection for those children who require or prefer to work at home. Other nontraditional elements include a full-color video projection system, an interactive laser disc retrieval program, cable and satellite television systems, a compact disc player, robotics, and access to a national weather satellite network.

A cooperative venture between the Hueneme School District and General Telephone Company (GTC) of California, SmartClassroom is also partially funded by the California State Lottery. ("Every time you spend a dollar on the lottery, you're investing in the future of our kids," Hueneme District superintendent Ron Rescigno likes to remind his fellow Californians.)

Testing and student record keeping in the SmartClassroom are all computerized, as are regular student assignments. And since the center is computerized, Rescigno says, textbooks are not needed — thus saving the school district money in that area of the budget.

On the basis of computerized tests that each SmartClassroom child takes at the beginning of the school year, students are placed into appropriate peer study groups. Each group is taught a different piece of classroom technology, which it then has the responsibility of "teaching" to the next group that is scheduled to use it.

Chris LaRose, the SmartClassroom science teacher, believes that SmartClassroom is a first step in creating a "SmartSchool" — and someday even a "SmartDistrict" — in Port Hueneme, California.

THE BREAD BAKERS

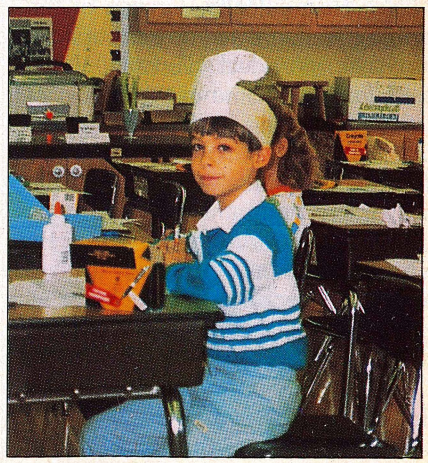
After reading about a "mystery smell" involving baking bread, students in Patricia Macdonald's third grade classroom at Thomas Jefferson Elementary School in Kenmore, New York, decided to try their own hands at baking bread.

What's a baker, though, without his or her chef hat? So before they hit the dough, the kids used a computer program called *Mask Parade* (Springboard Software) to design and print out their own chef hats.

Patricia used the word processing capabilities of her *AppleWorks* software program to write out the recipe. Materials were laid out on the table, and the third graders set to work.

"As the bread baked, the smell traveled throughout the school, bringing many sniffers to our door," Patricia says.

Before Patricia's students knew it, the bread had all been eaten. Then, using a simple word processing program called *Magic Slate* (Sunburst Communications), the children wrote their own stories about baking bread. They mounted these onto loaf shapes cut out of construction paper, and posted their writings on the bulletin board outside in the hallway, along with a copy of Patricia's "famous" bread recipe.



Pictured here: two great third grade chefs of Thomas Jefferson Elementary School in Kenmore, NY.

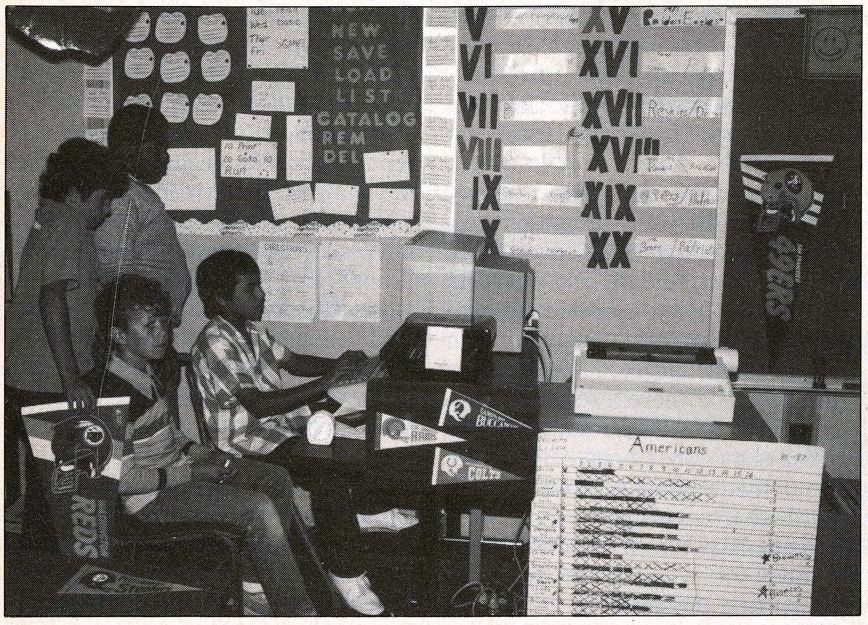
FOOTBALL SEASON FEVER!

A strike by the National Football League may have put a damper on the 1987-88 football season, but enthusiasm for the sport still runs high at Palm View Elementary School in Palmetto, Florida.

In large part, this is due to a teaching unit that Diane Kolbe put together for her third, fourth, and fifth grade students in September 1986, at the start of last football season. Diane had each student select two teams to follow — one from the American conference and one from the National. Team colors, emblems, and states were discussed and entered into a *Friendly Filer* data base program (Grolier Electronic Publishing). The students then used a word processor to write letters to "their" teams, requesting posters, pennants, and signed photographs of players.

As Superbowl Sunday approached, Diane and her students reviewed Roman numerals. The data base program was again put into use, this time to catalog the winners of Superbowls gone by.

"It's amazing how much the children learned without realizing it," Diane remembers.



Will the Miami Dolphins make it to the Superbowl? These Florida youngsters track NFL team wins and losses.

STUDENT TO STUDENT COLORING BOOKS

At the John H. West Elementary School in Bethpage, NY, learning disabled students in grades one through six use *Print Shop* (Broderbund) and *Magic Slate* (Sunburst Communications) to create coloring/story books for kindergarteners at the school. Their first release was a book about seasons; future plans include a book of numbers and an alphabet book.

In each case, a specially bound copy of the book will be presented to the school's library for circulation among future students.

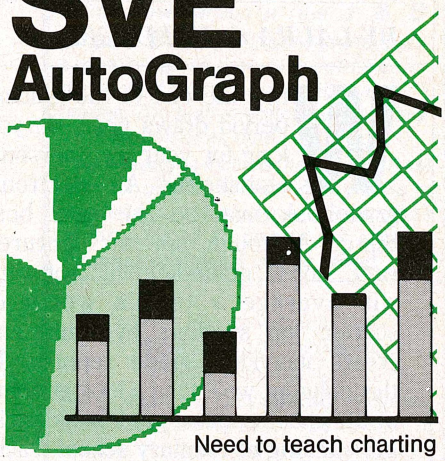
BE A REPORTER!

Come on, all you elementary and middle school educators! We know you're out there! What exciting computer project has *your* classroom or school been working on lately? We'd like to tell our readers about it in a future "Classroom Happenings." Send us a brief description of your project, along with any photos you can spare. We'll pay $25 to $50 if we publish your story. Write: Classroom Happenings, *Teaching and Computers,* 730 Broadway, New York, NY 10003. ■

BY JACKIE GLASTHAL

DAZZLING
DO-IT-YOURSELF
MICROCOMPUTER
GRAPH-MAKING!

SVE
AutoGraph



Need to teach charting and graphing skills? Organize raw data? Enhance oral and written reports? With SVE AutoGraph you can

- create circle, bar, picture, or line graphs in 16 double hi-res colors!
- use the interface that's easiest for you: keyboard, mouse, joystick, or Koala pad!
- print graphs in color or black and white (even the grays are gorgeous!)

SVE AutoGraph's pull-down menus make it simple enough for a fourth grader to use. Yet it's powerful enough to meet administrative needs.

Be a do-it-yourselfer! Try this program in your classroom with SVE's free 30 day evaluation offer to teachers and librarians.

For fastest service call toll-free:
1-800-621-1900

In Illinois call collect: 312-525-1500.
Or fill out and return the coupon below.

SVE • Society For Visual Education, Inc.
1345 Diversey Parkway
Chicago, IL 60614

SVE • Society For Visual Education, Inc.
A Business Corporation
Dept. TC188
1345 Diversey Parkway
Chicago, IL 60614

Yes, I'm interested in "SVE AutoGraph"

☐ Send me more information.
☐ Send me the software on 30-day evaluation.
☐ Please have my SVE representative call me.

Name _____
Title _____
School _____
Address _____
City _____ State _____ Zip _____
Phone (_____) _____

Circle 26 on Product Info Card.

THE WELL-MANAGED CLASSROOM

COMPUTER SOLUTIONS FOR ADMINISTRATIVE TASKS

Grading the Electronic Gradebooks

BY LAURA C. BULLOCK

When the end of the grading period draws near, do you long for your own personal statistician? An electronic gradebook may be the next best thing. Although specific features vary, most grade-keeping software will average a term's worth of scores, list students by rank, and create individual grade reports. In this column, we'll take a look at some of the most popular gradebook packages among elementary school teachers. One of them may be all the help you'll need next grading period.

The eight programs that we rate in the "Gradebook Report Card" on page 11 are all available for Apple II series computers, among others. Three noteworthy packages available only for non-Apple computers are:

- ***Compugrade*** for the Commodore PET and 64. Melcher Software, P.O. Box 213, Midland, MI 48640; 517/631-7607; $34.95. *(Circle 101 on Product Info. Card)*
- ***Excelsior Grade*** for the IBM PC/compatibles; also supports Scan-Tron and other optical scoring devices. Excelsior Software, P.O. Box 2760, Bryan, TX 77805; 409/774-4729; $185. *(Circle 102 on Product Info. Card)*
- ***Teacher's Pet*** for IBM PC/compatibles. Code of the West Software, P.O. Box 7764, Redlands, CA 92373; 714/792-4184; $24.95. *(Circle 103 on Product Info. Card)*

HOW WE GRADED THEM

To evaluate the programs listed in our "Report Card," we created a fictional grade roster made up of 20 student names, 12 lesson titles, and one score per student for each lesson cited. We used this roster with all eight programs, modifying it only where a specifically-tailored grading scale was required (see program descriptions, below).

The bottom line for any grading system, of course, is accuracy. We're happy to report that class averages were consistently accurate among these gradebook programs. Final grades for each student's performance varied marginally, due to differences in the way each program calculated a missing, excused, or incomplete grade entry; and the way they processed weighted assignments to calculate the overall grade.

Beyond the accuracy question, we graded each program by three categories:

- ***Ease of use:*** Is the program ready to be used as presented? Does it require any special operating system or hardware configuration? Is the documentation clear, both on the screen and in the manual? How easy is it to retrieve, edit, and print information? Is the effort spent learning the program worth the teacher's time?
- ***Practicality for elementary teachers:*** Does the program work at a slow, medium, or fast pace when reading/writing to disk, and printing? Does the software provide applications that *elementary* teachers can use, or is it targeted for another grade level? Is there a technical support telephone number that teachers can call should they need help? Is the price of the program reasonable, with regards to the applications it presents for elementary teachers? When printing, does the program use an excessive amount of paper?
- ***Flexibility:*** Is there flexibility in entering the number of students, classes, and assignments on a disk? Does the program allow the teacher to use letter grades, points, and percentages? Is the teacher able to enter incomplete, excused, and extra credit grades? Can assignments be weighted? Does the program have alphabetizing/sorting capabilities? Does the program provide optional or mandatory use of ID codes? Does the program accept upper/lower case or both? Does the program offer multiple applications, such as progress reports, gradebook sheets, record keeping for attendance, and other special options that elementary teachers would find useful? Are teachers able to customize progress reports with their own comments?

In addition to the report card on page 11, here's a brief summary of the programs we graded.

Gradebook Deluxe, for the Apple II series; EduSoft, P.O. Box 2560, Berkeley, CA 94702; 800/EDU-SOFT (in California, 415/548-2304); $59.95. *(Circle 104 on Product Info. Card)*

Pluses: As grades are calculated, they appear on the screen. Prints fast. ***Minuses:*** Entering of student names tedious; editing of lesson categories and other data difficult.

Grade Busters 1/2/3, for Apple IIe and IIc; Disco-Tech, 36-10 Queen Anne Way, Colorado Springs, CO 80907; 303/591-9815; $79.95. *(Circle 105 on Product Info. Card)*

Pluses: *Easy* to learn and edit; written in Assembly language so processing is FAST; screen and manual documentation excellent. Well suited for elementary teachers. Also supports Scan-Tron 1100 machine scoring device. ***Minuses:*** Limited on customized comments.

The J&S Gradebook, for the Apple II series; J&S Software, 14 Vanderventer Ave., Port Washington, NY 11050; 516/944-9304; $49.50. *(Circle 106 on Product Info. Card)*

Pluses: Good screen display of student information; user can view student files on the screen *before* printing, and tailor progress reports with personal comments and special student evaluation categories. ***Minuses:*** Only allows eight characters when typing in lesson descriptions. Disk reading between recording scores makes the program appear slow.

Master Grades, for the Apple II series, IBM PC/compatibles, Commodore PET/64; Midwest Software, Box 214, Farmington, MI 48024; 313/477-0897; $35. *(Circle 107 on Product Info. Card)*

Pluses: Creates easy to read and useful printouts for progress reports, report card summary and overall averages. ***Minuses:*** Every lesson is registered as a test; user can *only* view total points for each student, instead of individual lesson grades.

Here's how the Apple gradebooks rate (right).

GRADE BOOK REPORT CARD	Ease Of Use	Practicality For Elementary Teachers	Flexibility	Overall Grade
Grade Busters 1|2|3	A	A	B+	A-
Gradebook Deluxe	C-	C	C	C
Master Grades	B	C	C	C+
McGuffy's Grader	B	B-	A	B
Micro Grade	A-	C	A-	B
Report Card	A-	B	C	B
Teacher's Pet	C-	B-	A-	B-
The J&S Grade Book	A-	A-	B+	A-

McGuffy's Grader, for the Apple II series, Commodore 64/128, IBM PC/compatibles; Midwest Software, Box 214, Farmington, MI 48024; 313/477-0897; $49.50. *(Circle 107 on Product Info. Card)*

Pluses: Adequate space to enter general assignment codes and descriptions for lessons; easy editing; good comment section for progress reports; comes with four grading scales; provides a "fast chapter" for those who don't want to read manual. ***Minuses:*** *Difficult* manual to get through (except for the fast chapter mentioned above)—provides an overwhelming amount of information, which gives the program its flexibility, but only useful for those who have the determination to get through it.

MicroGrade, for the Apple II series, Macintosh, and IBM PC/compatibles; Chariot Software Group, 3659 India Street, Suite 100, San Diego, CA 92103; 800/CHA-RIOT (in California, 619/298-0202); $65/Apple and IBM; $95 Macintosh. *(Circle 108 on Product Info. Card)*

Pluses: *Easy* to edit and sort information; option of scrolling through screens to see where each student rates on a particular lesson; can customize dialog boxes for each printout. Impressive bar graphs depicting statistics for assignments. ***Minuses:*** User has to weigh every assignment (time consuming!) or opt for total points only. Uses a fair amount of paper to print reports. A *good* program for Macintosh users, but better suited for high school teachers and higher education, rather than elementary teachers.

Report Card, for Apple II series and IBM PC/compatibles; Sensible Software, Inc., 335 E. Big Beaver, Suite 207, Troy, MI 48083; 313/528-1950; $59.95. *(Circle 109 on Product Info. Card)*

Pluses: Easy to enter and edit information; good screen presentations and tutorial; fast processing; backup prompts. Can abort in the middle of printing. ***Minuses:*** No section for comments. Uses a lot of paper to print out reports; unable to print more than ten activities at a time; doesn't show descriptions for lessons in printout of class table of grades.

Teacher's Pet, for the Apple II series; Someplace Special Software, 11 Woodland Drive, Troy, PA 16947; 717/297-2336; $47.50. *(Circle 110 on Product Info. Card)*

Pluses: Can design "splinter" groups for elementary reading, math, or other special groups of one or more students. Can select program comments or enter your own for progress reports. Automatic addition or deletion of students for all class files. ***Minuses:*** Some difficulty in running program and following instructions in the voluminous manual. Program uses lots of paper to print reports.

FINAL COMMENTS

Purchasing an electronic gradebook makes sense if you feel *comfortable* working with a computer, if you have the time to enter student data into the program, if you'll use the computer to average grades (thus eliminating the need for you to do it by hand), and if you can use hard copy printouts of student grades, assignments, and progress reports to make the job of teaching an easier one for you.

And if you decide to switch over to an electronic gradebook, you must be scrupulous about backing up your data, either on a separate disk or by hand. As the author of *McGuffy's Grader* reminds the program's users, "You are about to entrust your entire teacher record book to a machine with an I.Q. of 0." All the computing power in the world won't fill in your grade roster if the raw data is lost. ■

Laura C. Bullock is a computer instructor at Blanchard Memorial School in Foxboro, MA.

Circle 18 on Product Info Card.

B+ ? Determine Grades The Easy Way! D 95 C

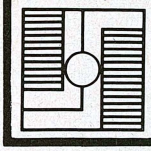
Use the **J & S Grade Book,** (formerly the Apple Grade Book) **New ProDos version. (5.4)**

This **new** version of the **J & S Grade Book,** will print grade book pages, progress reports, record incompletes, and average and weight all grades. The built in editor permits easy modification of all data.

New features include the use of a RAM disk for greater speed, enter grades in **any** order, and design your own progress reports. Up to 55 grades per student. Progress comments can be saved.

IIgs Compatible
Save up to 1000 students
on a 3.5 inch IIgs disk

For all Apple II's. Only **$49.50.** (includes a backup). Specify Laser 128 version, if needed. Programs are also available in science. Send for free catalog and more information. Grade book demo $5.00. Call for update information



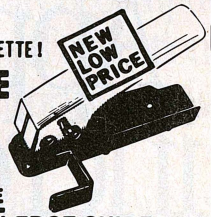
J & S Software
135 Haven Avenue
Port Washington, N.Y. 11050
(516) 944-9304

Circle 24 on Product Info Card.

NOW USE BOTH SIDES OF YOUR DISKETTE!

5¼" DISKETTE HOLE PUNCH WITH HOLE GUIDE and EDGE GUIDE

NEW LOW PRICE



PUNCH OUT IS ALWAYS IN THE RIGHT POSITION
Available for IMMEDIATE Shipment
only $5.00 EACH add $2.00 EACH shipping
CHECK OR MONEY ORDER

5¼" DISKETTES
DOUBLE SIDED/DOUBLE DENSITY
Each Diskette 100% Certified
5¼ Double Sided Double Density
59¢ each
MIN. ORDER 100
+ $3.40 UPS
or 50 for 65¢ EACH + U.P.S. $2.00
(Includes: Tyvek Sleeves, Labels, Tabs & Hubs)
Check or Money Order –
C.O.D. add $3.00
Order 250 Units and UPS only is FREE in 50 US

EXTRA WRITE PROTECT TABS
100 for $1 Prpd.

N.P.S.Inc. Dept. TC (215) 884-6010
1138 BOXWOOD RD. JENKINTOWN, PA 19046 WA3IFQ

Apple announces a major increase in teacher benefits.

Over the years, Apple® II personal computers have earned a place on every desk in the classroom, and several in the administration building.

But now we've got something special for the teacher's desk.

It's our most advanced model, the Apple IIGS. Which can help educators manage all the information that comes hand-in-hand with teaching.

So they can spend less time on paperwork, and more time on classwork.

The IIGS is much faster than any Apple II that's come before. And its memory can be expanded to a recommended 512K. Or all the way up to four megabytes.

With this new power, it can run sophisticated programs with Macintosh™-like features—making use of a mouse, point-and-click commands and pull-down menus.

For example, there are word processing programs that can be a big help in preparing lesson plans, tests and assignment sheets. And in corresponding with administrators and parents.

There are organizational programs that can help keep track of class records—such as attendance and grades—to make it

© 1987 Apple Computer, Inc. Apple and the Apple logo are registered trademarks of Apple Computer, Inc. Macintosh is a trademark of Apple Computer, Inc. Screen: MultiScribe by StyleWare, Inc.

easy to chart students' progress over the course of the academic year.

As well as other programs to help a teacher do everything from creating seating charts to producing newsletters.

Plus, the IIGS has a few unique talents that really stand out in school.

It has an uncanny talent for high-resolution color graphics, to the tune of 4,096 colors. And an audio ability so highly developed, it can faithfully replicate sounds ranging from a single human voice to a full symphony orchestra.

So with a IIGS at the head of the class, a teacher can more dramatically demonstrate courseware. While students can complete their lessons using the Apple IIs you already have in school.

And since most educators are experienced with the Apple II family of computers–along with its vast library of educational software–putting the IIGS to work is as easy as putting it on a teacher's desk.

Which, in turn, is as easy as contacting an authorized Apple representative.

You should also note that teachers and administrators can now get the school price on Apple computers for their use at home–simply by becoming part of our Educator Buy program.

Just call 800-538-9696, extension 480, to get more information.

You'll find that the Apple IIGS personal computer is one benefits package you can afford to give all your teachers.

Before they ask for it.

The power to be your best.™

Circle 20 on Product Info Card

Programming a New Year

BY TRISHA AINSA

Children are naturally excited about new beginnings and new plans. As the beginning of a new year, January is a perfect time to teach your class about planning. This flowcharting lesson teaches the essentials of planning and sequencing. It also enhances the early childhood skill of identifying shapes.

INTRODUCING THE SHAPES WITH SOFTWARE

Before children can learn to plan with a flowchart, they need to be familiar with basic shapes. The activities in this section will help you introduce or review these shapes.

Preparation: There are many good early childhood software packages for teaching visual discrimination of shapes, shape recognition, and matching of shapes. My favorites include *Ernie's Magic Shapes* (Mindscape), *Early Games/Make A Match* (Springboard), *Early Discoveries: Colors and Shapes* (Hartley), *Shape and Color Rodeo* (DLM), and *First Shapes* (First Byte). Select one of these or a similar program to use with your class.

For each child, you will also need to cut out from construction paper a medium-sized triangle, rectangle, diamond, square, circle, and oval.

Activity: Distribute one set of shapes to each student. As you hold up each shape and name it, ask your students to find that shape in their own set. When your students have mastered the cutouts, have them gather in the computer corner. Ask for a volunteer to load the software diskette. When the program is ready, run through it once or twice as a group, with you or a student you've selected typing in the group's responses. Then let each child take a turn at the computer.

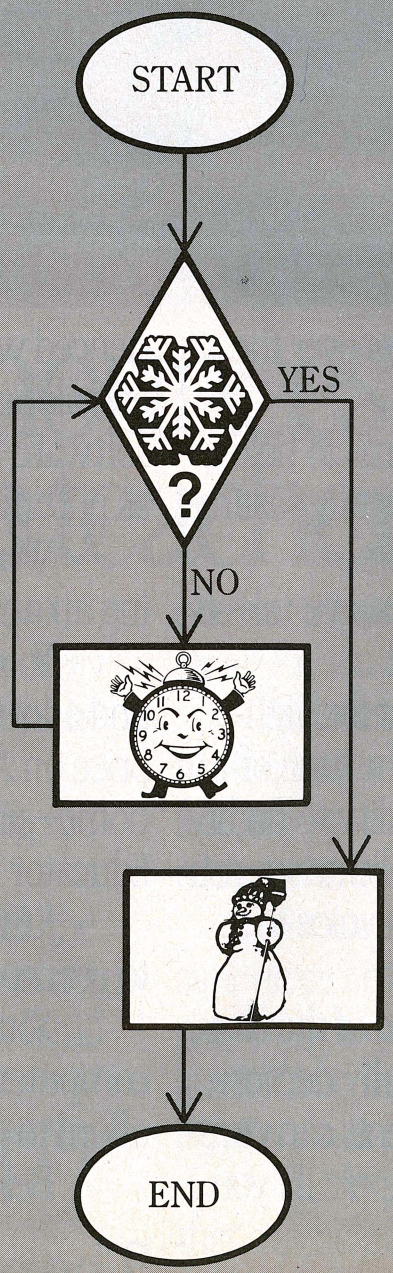
TEACHING FLOWCHART SHAPES

When the children have learned the shapes, they are ready to learn that flowchart shapes have meanings.

Preparation: Cut out three medium-sized construction paper shapes — one rectangle, one oval, and one diamond — for each child in your class. Make "popsicle puppets" of the cutouts by gluing a popsicle stick to the back of each shape. Make a fourth "puppet" for each child by drawing an arrow on a popsicle stick.

Draw a blank flowchart (modeled after the one below) on a poster to display at the front of your classroom.

Activity: Tell the children that a flowchart is like a map, only instead telling where to *go* next, it tells what to *do* next. Explain that flowcharts are used to make computer programs. Distribute the popsicle puppets, and tell children that these oval, diamond, arrow, and rectangle



Directions for Flowchart

1. Point to the START oval.
   "This means that this is the beginning of the flowchart."
2. Follow the arrow from the START oval to the diamond.
   "The arrow shows which way to go."
3. Point to the diamond.
   "This shape asks a 'yes' or 'no' question. The question here is, 'Did it snow?'"
4. Follow the "no" arrow from the diamond to the top rectangle.
   "If the answer is 'no,' we follow the 'no' path."
5. Point to the rectangle.
   "This shape gives us a command. It tells us to wait until tomorrow."
6. Follow the arrow (loop) back to the diamond.
   "Remember the diamond's question. Let's say that this time the answer is 'yes.'"
7. Follow the "yes" arrow to the bottom rectangle.
   "Since the answer is 'yes,' we will follow the 'yes' arrow."
8. Point to the rectangle.
   "Remember that this shape gives a command. This time, it tells us to build the snowman!"
9. Follow the arrow from the rectangle to the END oval.
   "This shape now means 'end.' We have completed our plan."

shapes have special meanings on the flowchart. As you recite the rhyme below and point to the appropriate shapes on your poster flowchart, ask children to hold up the popsicle puppet that matches each shape.

Five flowchart shapes in a row
The oval says, 'I say go.'
The rectangle says, 'I give commands.'
The diamond says, 'I ask questions, yes or no.'
The arrow says, 'I'll show you the way.'
This time the oval says, 'I'll end this play.'

NEW YEAR'S FLOWCHARTS

When the children have learned what the flowchart shapes mean, show them how to use a flowchart to structure their own plans.

Preparation: Cut out from white construction paper five small shapes (two ovals, two rectangles, and one diamond) for each child. Also provide each child with one sheet of colored construction paper, scissors, glue, pencils, and crayons.

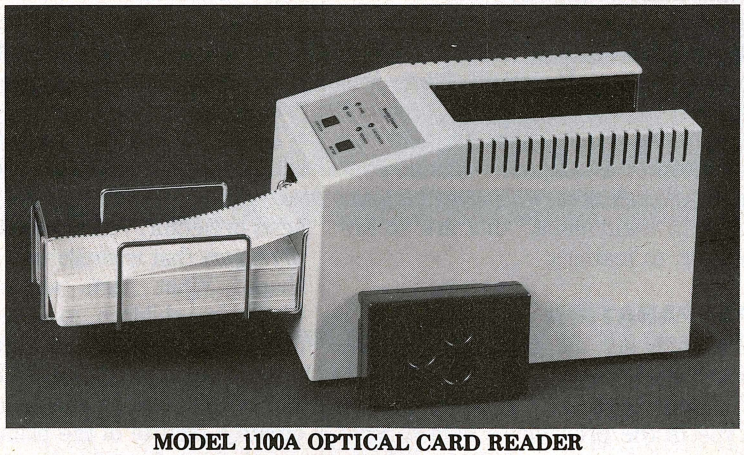
Discussion: Tell children that January is a good time to make plans. Ask them to think of things they would like to do as a class in the new year. Choose one plan to put into flowchart form, following the filled-in sample below, which shows a a plan to build a class snowman. On your blank poster flowchart, draw pictures inside the diamond and rectangles to illustrate their meaning, and label the arrows "yes" and "no." Explain each step to the children as modeled below.

Activity: Ask each child to now think of his or her own plan to flowchart. The plan can be realistic (such as having a birthday party) or make-believe (such as taking a trip to the moon). Distribute the white shapes and colored construction paper, and show the children how to paste the shapes into flowchart form on the colored background. Remember to draw arrows to make the flowchart complete, and label the appropriate arrows "yes" and "no."

Instruct the children to draw a picture for each step of their plans. Then have your students come one by one to the word processor to dictate their plans to you. Type each plan in two or three sentences to attach to the completed flowchart. ■

Trisha Ainsa is director of the Computer Literacy in Children/Title VII Program, Region XIX Education Service Center, El Paso, Texas, and an associate professor at the University of Texas at El Paso.

Don't test your ability to test your students' abilities...



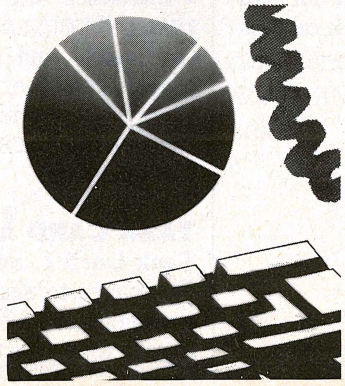
MODEL 1100A OPTICAL CARD READER

When test analysis is crucial, attendance records are vital, and surveys are more than a passing fancy, there is only one choice in a flexible test system . . . the **1100A Optical Card Reader.**

The 1100A Optical Card Reader is a small, quiet and rugged desktop unit designed to meet the needs of microcomputers and minicomputers with an extremely cost effective means of data entry.

Holds 200 cards which can contain any combination of pencil marks, punched holes, and printed marks and automatically feeds at a rate of 120 cards per minute.

- **2 Year Limited Warranty**
  On Parts & Labor - Please mention this ad



For more information contact:

MICHAEL & ASSOCIATES
2718 S.W. Kelly
Suite C-337
Portland, Oregon
97201
(503) 299-4694
(206) 892-9954

Circle 21 on Product Info Card.

THE THINK TANK

TASK CARDS THAT TEACH THINKING SKILLS

The Forest and the Trees

Each month this column provides four student activity cards for sharpening problem solving skills. This month, analysis skills are taught through a series of Logo activities involving geometric shapes.

ANALYSIS: PART/WHOLE RELATIONSHIPS

How good are your students at seeing the forest for the trees? How about seeing the trees for the forest? As problem solvers, your students need more than the ability to observe; they need the ability to analyze as well. By mentally or physically manipulating pieces or parts to make a whole, students learn to see more than just "the forest"; they learn to distinguish the elm trees, pine trees, poison ivy, and other flora that are its parts.

Analysis does not just happen. Students must be provided with an environment that encourages them to take things apart and to put them back together. By manipulating bits and pieces, children gain the concrete experiences necessary to mentally reconstruct an object. Without concrete experiences, kids lack the "pictures in their minds" that are so important to learning.

PREPARATION

1. Punch out the task cards on the next page.
2. Load Logo into your computer. Type in the procedures below. Save the procedures on a blank diskette under the file name PARTS.
3. Have pick-up sticks or uncooked spaghetti strands on hand for students to use in the pre-task card activities.

THE PROCEDURES

```
TO LITTLELINE
  FORWARD 30
END

TO HALFCORNER
  RIGHT 45
END

TO CORNER
  REPEAT 2 [HALFCORNER]
END

TO LINE
  REPEAT 2 [LITTLELINE]
END

TO TRIANGLE
  REPEAT 3 [LITTLELINE RT 120]
END

TO SQUARE
  REPEAT 4 [LITTLELINE CORNER]
END

TO HEXAGON
  REPEAT 6 [LITTLELINE RT 60]
END
```

PRE-TASK CARD ACTIVITIES

- Have students use pick-up sticks or uncooked spaghetti strands of equal length to create "line drawings." Challenge the children to create stars, circles, and other shapes. Have students describe the ways they used the "parts" to create a "whole" picture.
- Draw an equilateral triangle, a square, a pentagon, and a five-pointed star on the chalkboard or overhead projector. Ask students to identify a part that is similar in each whole shape. What parts are dissimilar? Challenge children to select one of these four shapes and create a picture using only that shape. For example, using triangles only, can students create a picture of the plants lined up on the windowsill? Have students compare their drawings when they are through.
- Introduce the Logo procedures LINE and CORNER. Type each procedure name and show the resulting graphic on the computer screen. Then show students how to use the CLEARSCREEN (CS) command to clear the screen.

TASK CARD ACTIVITIES

Task Card 1. Students analyze simple shapes to discover the parts that each contains. Using only two procedures, they construct squares, rectangles, "windows," and other shapes.

Task Card 2. Students concentrate on the importance of angles in creating shapes.

Task Card 3. Students experiment with new angles and line lengths.

Task Card 4. Students analyze a number of complex shapes and then recreate them using the REPEAT command.

POST-TASK CARD ACTIVITIES

- If they are not already familiar with them, introduce students to the Logo primitives FORWARD, BACK, LEFT, RIGHT, PENUP, and PENDOWN. How might students figure out the number of steps necessary to move the Logo turtle the same number of turtle steps as the LINE procedure? How might they figure out the values necessary to make RIGHT the same corner turn as the CORNER and HALFCORNER procedures?
- Challenge your students to create the task card shapes, using Logo primitives, instead of the LINE and CORNER procedures.
- Add this procedure to your list of PARTS procedures:

```
TO PUZZLE
  REPEAT 3 [LINE RT 120]
  LITTLELINE TRIANGLE
  RT 60 TRIANGLE PU
END
```

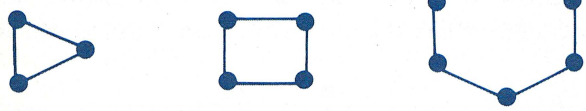
How many triangles do students see when they run the PUZZLE procedure? *(There are five triangles — four in the middle, plus the large outer triangle.)* Without seeing the procedure, can your students figure out a way to draw this figure on the computer screen? Have students create similar puzzles — either on or off the computer — and then use them to stump their friends. ■

Thomas E. Boudrot, author of *Byte-Sized Activities: The Generic Word Processing Book,* is an education specialist for the Division of Educational Technology, Texas Education Agency, Austin, TX.

ANALYSIS 1 TASK CARD

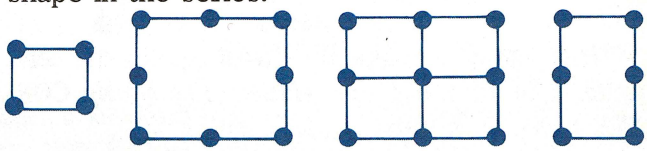
"Square" Dancing

What do the three shapes below all have in common?



Each shape was created with a different number of lines, but all the lines are the same length. They all look like this:

1. Load Logo into your computer. Ask your teacher for the disk that contains the PARTS procedures.
2. Type LOAD "PARTS (or READ PARTS) and press RETURN. Now type LINE to see the line that you have to work with. Type CLEARSCREEN when you know what the line looks like.
3. Type CORNER and then press RETURN to see the corner that you have to work with. Type CORNER a number of times. What does the Logo turtle do? How many times do you have to type CORNER before the Logo turtle is back where it began?
4. Using only two commands — LINE and CORNER — can you create the shapes below? If you make a mistake, type CLEARSCREEN to start again. Once you have created a shape, type CLEARSCREEN. Then try to create the next shape in the series.



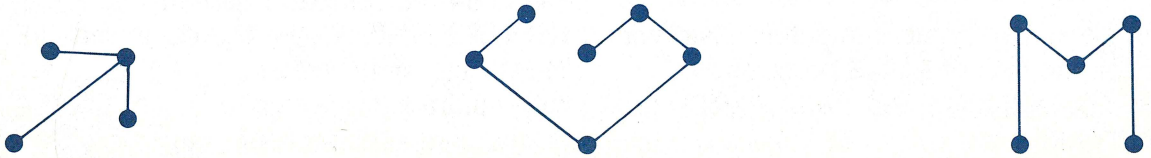
ANALYSIS 3 TASK CARD

Half Parts

Complete Task Card 2 before you try the activities on this card.

To make life interesting, let's add two new commands to the ones you already have to work with.

1. Load Logo into your computer. Ask your teacher for the disk that contains the PARTS procedures.
2. Type LOAD "PARTS (or READ PARTS) and press RETURN.
3. Type LITTLELINE and press RETURN. The Logo turtle will draw a line that is half the length of LINE. Type CLEARSCREEN and press RETURN when you know what LITTLELINE looks like.
4. Type HALFCORNER and press RETURN. The Logo turtle will turn half the amount that it turns when you type CORNER. Type CLEARSCREEN and press RETURN when you know what HALFCORNER will do.
5. Using the commands LINE, CORNER, LITTLELINE and HALFCORNER, can you create each of the designs below?



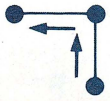
ANALYSIS 2 TASK CARD

Not So "Square" Dancing!

Complete Task Card 1 before you try the activities on this card.

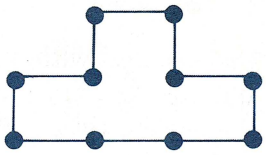
It's amazing what can be done using only a line and a corner!

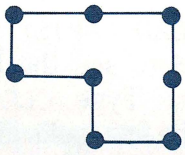
1. Load Logo into your computer. Ask your teacher for the disk that contains the PARTS procedures.
2. Type LOAD "PARTS (or READ PARTS) and press RETURN.
3. Try to create this shape, using only the commands LINE and CORNER.

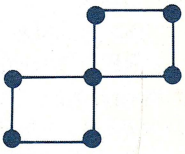


How can you make the turtle go to the left, instead of to the right? *(Hint: Try typing* CORNER *more than once.)*

3. Now try to create each of the shapes below. Remember: if you make a mistake, or are ready to go on to a new picture, type CLEARSCREEN to erase whatever is showing on your monitor.





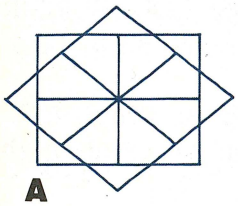


ANALYSIS 4 TASK CARD

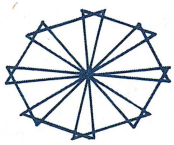
Be a Star!

Complete Task Card 3 before you try the activities on this card.

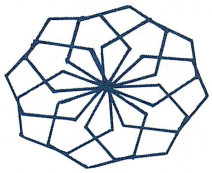
By turning a square, a triangle, and a *hexagon* (a six-sided figure), you can create some very complex "stars"!



A



B



C

1. Load Logo into your computer. Ask your teacher for the disk of PARTS procedures.
2. Type LOAD "PARTS (or READ PARTS) and press RETURN.
3. Type SQUARE and press return. Type CLEARSCREEN.
4. Type TRIANGLE and press RETURN. Type CLEARSCREEN.
5. Type HEXAGON and press return. Type CLEARSCREEN.
6. Now type this:

REPEAT 8 [SQUARE HALFCORNER]

Press RETURN. The computer will draw figure A above.

7. Can you figure out a way to draw figures B and C on the computer screen?

CHALLENGE: Using the commands REPEAT, TRIANGLE, and CORNER, can you draw this design on the computer screen?

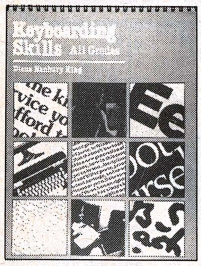
D

Keying In On Computers

BY CANDY COLBORN

It's amazing just how many ways there are to teach touch typing. Each book below has a style all its own, and each is geared toward a different age, grade, and ability level.

KEYBOARDING SKILLS: ALL GRADES



A good choice for learners of any age, ***Keyboarding Skills: All Grades*** by Diana Hanbury King stresses the connection between saying a letter out loud and striking it on the keyboard. Most unique about the book, however, is its alphabetic approach, which should make more sense to most children than endless rows of "asdf."

The instructions on King's clean, uncluttered pages are simple enough for children from about second grade and up to follow by themselves — although there are some key words (no pun intended!) that the children may need to learn first.

A vertical format and spiral binding allow you to stand the book up next to the keyboard for easy practice. I would recommend *Keyboarding Skills* to parents asking for a book to use at home — non-typing adults will be comfortable learning from this one right alongside their young ones! Price: *$6.* Contact: *Educators Publishing Service, Inc., 75 Moulton St., Cambridge MA 02238-9101.*

KEYBOARDING FOR KIDS: TEACH YOUR CHILD IN 10 EASY, FUN LESSONS

Although designed with children in mind, Barbara Aliga's ***Keyboarding for Kids: Teach Your Child in 10, Easy, Fun Lessons*** is elaborately organized. Part one contains ten lessons, traditionally arranged with the home row keys taught first. Part two includes keyboard finger practice; speedbuilding and type-with-rhythm exercises; an explanation of tab, centering, and margins; and word lists for students to practice from. Also included are pictures made with keyboard letters and symbols, a certificate of completion that can be photocopied, and an appendix of teacher's notes.

The first part of the book requires a fourth grade reading level for independent use; part two, a fifth to sixth grade reading level. Children without these reading skills can also use the book, as long as an adult is available to give assistance.

Every lesson includes a keyboard chart highlighting the letters for that lesson, as well as an outline of two hands, with the appropriate fingers marked. Users are instructed to mark these letters on their own hands, using a felt tip pen or tape. In doing so, a child is able to "practice" while watching TV and performing other mindless tasks.
Price: *$7.95 plus $1.50 postage and handling for orders of $20 or less.* Contact: *Self-Counsel Press Inc., 1303 N. Northgate Way, Seattle, WA 98133.*

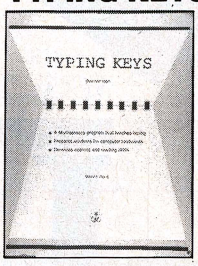
KIDS CAN TYPE TOO!

Christine Mountford's ***Kids Can Type Too!*** for primary school children is the size of a steno pad and contains an cardboard base for easy use. Throughout the colorful pages is a nautical theme: The "f" and "j" keys, for example, are referred to as "anchor" keys; "a" and ";" as "buoy" keys. Illustrations help make sense of these, but kids may need additional explanation.

Adhesive backed textured dots are supplied to help children identify the anchor and buoy keys on a real keyboard without looking down. Keyboard pictures in the book are also color coded, based on the finger used to press each one. The author recommends that children color their own fingertips accordingly.

Six short lines of practice are provided at the bottom of each page, and the author suggests that children should practice each one of these lines no more than three times per session. The final five lessons of this 22-lesson text introduce the top row number keys. Price: *$6.95.* Contact: *Barron's Educational Series, Inc., 250 Wireless Blvd., Hauppage, NY 11788.*

TYPING KEYS



Typing Keys by Maetta Davis is for teachers preparing touch typing lessons for children in grades 2 and 3, and special needs children in any grade. The pages of the book, which are not typeset, contain thorough lesson plans involving practice cards and wall charts, verbal drills by the teacher, and related language arts and writing activities. It all adds up to a multisensory approach to the "home keys first" method of teaching keyboarding.

If you follow the book's sequence, children practice each new letter, use finger isometric exercises, drill cards, and phrases that are dictated by the teacher. As each letter is introduced, it is written on the appropriate finger of each child's hand and placed on the bright yellow wall chart which the teacher is expected to prepare. Additional suggestions and extension activities are provided for each of the 20 lessons. The book is also available on disk for Apple II series computers. Price: *$10 for text; $25 for software edition.* Contact: *Academic Therapy Publications, 20 Commercial Blvd., Novato, CA 94947-6191.* ■

Candy Colborn is a media specialist at Cottonwood Creek Elementary School in Englewood, CO.

188 SOFTWARE HITS

BY SHIELA SWETT

Looking for software that's in tune with your teaching objectives? Here's a parade of packages that ought to be right on key!

Whether you're introducing sentence structure to second graders, reinforcing middle school math, or bringing social studies to life for grade six, these "software hits" will harmonize with the way you teach. They're the top of the charts on every count: educational design, technical performance, and that extra *something* that wins young fans.

The software hits are arranged in a handy chart format by subject area and grade level, with four selections for each of three specific skills under each subject/grade heading. The last chart in the section features versatile, easy-to-operate utilities and peripherals that will make your job easier, across and beyond the curriculum.

Many of the packages in this special section are recent releases, but not all: some are educational software classics that you may already own. In addition to providing a ready-made shopping list for filling in the gaps in your collection, "188 Software Hits" may suggest new ways to match the programs you have on hand to the skills you want to teach.

Like any list of greatest hits, though, chances are that this one leaves out one or two of *your* favorites. If that's the case, write and tell us about it. We'll share your favorites with other readers in a future issue.

Happy chart-hopping!

***Shiela Swett** is a computer specialist in Norwich, Vermont, and a contributing editor for* Teaching and Computers.

BARBRA FRIEDMAN

LANGUAGE ARTS

K to 4

188 SOFTWARE HITS

KINDERGARTEN—FIRST GRADE

SKILLS	RECOMMENDED SOFTWARE			
PREREADING	**Muppet Word Book** (Sunburst). Six imaginative games explore the alphabet, creating words, and even some word processing. Works well with Muppet Learning Keys. **A**, $65.	**Stickybear ABC** (Weekly Reader). Students explore the keyboard and alphabet at their own pace. Music, animation, and humor. **A**, $39.95; **C**, $29.95.	**Alphabet Circus** (DLM). Students play six animated letter games that have a circus theme. Games provide several levels of difficulty. **A, C, I, T**, $29.95.	**Word Bank** (Mindscape). Students classify words by short or long vowels, or by the "how, where, why, and who" of everyday experiences. Features four different games. Add your own word lists. **A**, $49.95.
READING	**Reader Rabbit** (Learning Company). Four reading games that use words with consonant-vowel-consonant structure. Hear and see words with the IIGS version! **A, C, I, T**, $39.95; **GS**, $59.95.	**Tiger's Tales** (Sunburst). Students read five motivating stories about Tiger the cat, and develop sight vocabulary as they respond to challenges in the program. **A, C**, $65.	**Stickybear Reading** (Weekly Reader). Players match pictures with words or build simple sentences. Some nice animation. Builds basic sight vocabulary. **A**, $39.95; **C**, $29.95.	**Sound Ideas: Word Attack** (Houghton Mifflin). A novel set of disks combining sight and sound to reinforce phonics and words in context. Requires speech synthesizer. **A**, $165.
WRITING	**Cotton Tales** (MindPlay). Students play with pictures and words to create simple scenes. Menus help players insert, erase, copy, scroll, save, load, delete, and print their work. Includes teacher utility. Flexible and fun! **A**, $49.99.	**Talking TextWriter** (Scholastic). Young writers can now hear what they write with this new word processor! **A, I, T**, Educators' price: $199.95 with Echo board; $149.95 without.	**Kermit's Electronic Storymaker** (Simon & Schuster). Players encounter ever-changing and often ridiculous situations as they explore parts of speech. Fun! **A**, $39.95; **C**, $29.95.	**Microtype, The Wonderful World of PAWS** (South-Western). Young students use it to learn the alphabet; older players practice keyboarding. **A, C, I, T**, $39.95.

SECOND—FOURTH GRADE

READING	**Word Munchers** (MECC). Players munch words (Pac-Man style) that match target vowel sounds. Top level includes *oi*, *ou*, vowels + *r*, and the classic rule breakers. **A**, $49.	**Those Amazing Reading Machines I & II** (MECC). Students read for sequence and detail by observing a series of Rube Goldberg contraptions in action, and matching the machines to their correct written descriptions. Unique! **A**, $55 each; **GS**, $59 each.	**Stickybear Reading Comprehension** (Weekly Reader). Students read stories, then answer comprehension questions. Automatically adjusts to reader's responses. Includes record-keeping and teacher options. **A**, $39.95.	**Ten Clues** (Sunburst). Players learn the difference between variable and critical attributes as they read and decipher a series of clues to guess the mystery message. Students can create their own games, too! **A**, $65.
VOCABULARY	**Wizard of Words** (Advanced Ideas). Five word games involving a juggler, knight, princess, friendly dragon, and heralds develop reading and spelling skills. **A, C, I**, $39.95.	**Word Master/Word Invasion** (DLM). In *Word Master*, players use elecronic rays to zap target word's antonyms, synonyms, or homonyms. In *Word Invasion*, students zap parts of speech. Variable speeds and levels. **A, C, I**, $44 each.	**Stickybear Parts of Speech** (Weekly Reader). Four colorful drills/levels make this topic more fun to practice. Uses built-in word lists or add your own. Includes print option. **A**, $39.95	**Writer Rabbit** (Learning Company). Six carefully sequenced games help children put words and phrases together to build complete sentences. **A, I**, $54.95.
WRITING	**Snoopy Writer** (Random House). Students use this irresistible word processing program to create their own Snoopy scenes from story starter sentences. Lots for the price! **A**, $29.95; **C**, $19.95.	**Teddy Bear-rels of Fun** (DLM). With some assistance, students experiment with beginning desktop publishing by creating colorful signs, cards, and stories. **A, C**, $39.	**Kidwriter** (Spinnaker). Students create pictures with given icons, then write a story. Includes print option. **A, I**, $39.95; **C**, $26.95.	**Stickybear Printer** (Weekly Reader). Students can design and print cards, stories, stationery, and signs; print and illustrate their own books; and more with this creative graphic design program. **A**, $39.95.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

LANGUAGE ARTS

4 to 8

188 SOFTWARE HITS

FOURTH—SIXTH GRADE

SKILLS	RECOMMENDED SOFTWARE			
READING & VOCABULARY	**Those Amazing Reading Machines III & IV** (MECC). Students who've mastered *I* & *II* will find more complex machines and descriptions that need correcting. Players must look, remember, sequence, and read with care! **A**, $55 each; **GS**, $59 each.	**Scholastic Reading Comprehension** (Scholastic). Students read grade-specific passages and answer a series of multiple-choice questions. Includes HELP highlighter and record-keeping. Add your own reading passages! **A**, $99.95 per grade level.	**Read 'n Roll** (Davidson). Five reading activities using 320 passages develop reading and vocabulary skills. Includes an easy-to-use editor and highlighted hints. Thoughtful and comprehensive. **A, I, T,** $49.95	**The GAPPER Reading Lab** (HRM). Students work through sets of teacher-defined reading and writing activities. Includes record keeping, word processing, and a section to create new activities. A comprehensive tool! **A**, $95.
SPELLING & GRAMMAR	**Grammar Gremlins** (Davidson). Players practice nine grammar rules (punctuation, capitalization, plurals, etc.) in this haunted house game. Pre- and post-tests given. **A, I,** $49.95.	**Wally's Word Works** (Sunburst). Players pick up and deposit a word in the correct "pocket" (part of speech), using position and function in the sentence as clues. **A, C,** $75.	**Punctuation Put-On** (Sunburst). Student writers read a short passage (narration, dialogue, or poetry), then decide where to put punctuation marks to enhance the writing. **A, I,** $75.	**Spell It!** (Davidson). Children read a commonly misspelled word, use it in context, unscramble it, and finally spell it. Grade-specific data disks available. **A, C, I,** $49.95.
WRITING	**Create With Garfield** (DLM). Students learn early desktop publishing by sequencing, arranging, writing, illustrating, and printing their own Garfield posters, cartoons, and labels. Fun and easy to use! **A, C,** $39.95.	**Story Tree** (Scholastic). Children write their own interactive stories, following on-screen samples and instructions, and can change or extend stories. **A, C, I,** $59.95.	**The Writing Adventure** (DLM). Students look at graphics, answer questions, take notes, and use a unique proofing aid to search for grammatical errors as they create their own adventure stories. Open-ended and fun! **A, C,** $59.95.	**Electric Writing** (Creative Publications). Two disks, "Editing" or "Writing Creatively," contain files for on- or off-screen activities. Available in *AppleWorks*, *Bank St. Writer*, or generic word processing versions. **A**, $26.95 each.

SIXTH—EIGHTH GRADE

READING	**Microzine** (Scholastic). This magazine-on-a-disk offers four varied reading and problem solving programs per issue. You'll find many curriculum applications. Five issues/year. **A**, $39.95 each.	**Smart Eyes** (Addison-Wesley). Students use physical eye exercises to improve the rate at which they read. Includes interesting reading-for-meaning activities and record keeping. **A, I, M,** $49.95.	**Myths, Magic and Monsters** (Word Associates). Students read short, highly motivating passages that stress comprehension skills without time pressure. Includes test or tutorial modes. Great for special ed! **A, C, I,** $39.	**Magical Myths** (Unicorn). Students read three animated Greek myths and answer comprehension and vocabulary questions. Create your own myths and questions. Includes over 600 questions and a memory match game. Thorough! **A**, $49.95.
VOCABULARY & SPELLING & GRAMMAR	**Spell It!** (Davidson). Children read a commonly misspelled word, use it in context, unscramble it, and finally spell it. (A frog leaps up and eats the right choices!) **A, I,** $49.95.	**Word Attack!** (Davidson). Four activities drill word meanings on nine levels; fourth activity is a zippy game. Add your own word lists. **A, C, I, M,** $49.95.	**Crossword Magic** (Mindscape). Children create crossword puzzles using vocabulary or spelling words. Good for subject review or quiz. **A, C, I,** $59.95.	**Spell Checkers and Thesauri** (Many available). Students use these electronic tools to edit and proof final drafts of text created with a word processor. Some are stand-alone products, others included within word processors. Both save teacher time for higher-level editing.
WRITING	**Suspect Sentences** (Ginn & Co.). Students try to match style, content, grammar, and spelling when adding sentences to given literary passages. Sharpens thinking and writing. Super! **A**, $59.95.	**Show Time** (MECC). Students write, edit, practice, and perform their own short plays with this innovative scriptwriter. Includes banks of characters, props, music, and a built-in word processor based on *MECC Writer*. **A**, $55.	**MultiScribe** (Scholastic). With Mac-like graphics, fonts, and other special desktop publishing features, students can be extra-creative while they write. Includes color printing with the GS. **A, GS,** $99.95.	**Newsroom Scholastic Edition** (Scholastic). Six work areas give students hands-on experience writing, editing, illustrating, and doing layouts. Includes comprehensive print tutorial. **A, C, I,** $74.95

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

MATH

K to 4

188 SOFTWARE HITS

KINDERGARTEN—FIRST GRADE

SKILLS	RECOMMENDED SOFTWARE			
COUNTING & COMPUTATION	**Number Farm** (DLM). Children learn to recognize numerals 1-9, count items, and practice concepts of "greater than," "less than," "too few," and "too many" in a cheerful farm setting. May require adult help. **A, C, I, T,** $32.95.	**Stickybear Numbers** (Weekly Reader). Students practice counting big, animated Stickybears, trucks, ducks, planes, etc. More than 250 picture combinations. **A, I,** $39.95; **C,** $29.95.	**Counting Critters/Arithmetic Critters** (MECC). Students progress from matching and counting numbers 1-20 in the first program, to practicing place values, simple addition and subtraction, and measurement in the second. **A,** $49 each; **GS,** $55 each.	**Number Sea Hunt** (Gamco). Students practice simple counting, ordering numbers, adding and subtracting with appealing graphics for reinforcement. Includes a useful management system. **A, C, TRS,** $54.95
GEOMETRY & MEASUREMENT	**Delta Drawing** (Spinnaker). Children explore geometric shapes, measuring, spatial awareness, and directionality with this pre-LOGO activity. **A, C, I,** $39.95.	**EZ LOGO - Revised Edition** (MECC). Students use single-letter commands to travel through mazes, trace or copy letters, and explore turtle graphics. Printer optional. **A,** $49; **GS,** $55.	**Fish Scales** (DLM). Players use an on-screen measuring stick to compare height, length, and distance in six colorful fish games. Teachers can record student performance. **A,** $32.95.	**Stickybear Shapes** (Weekly Reader). Three animated Stickybear games help children discriminate basic geometric shapes. Players name, pick, or find circles, squares, triangles. **A,** $39.95; **C,** $29.95.
PROBLEM SOLVING	**Estimation** (Lawrence Hall of Science). Students make quick approximations of distance, speed, quantity, and length as they locate a train in a tunnel or guess how many trucks fit in a toy chest. Great! **A,** $34.95.	**The Pond** (Sunburst). Students use trial-and-error and logical deduction strategies to help a frog jump across a pond. Six levels of difficulty. **A, C, I, TRSC,** $65.	**Rosie, the Counting Rabbit** (Collamore). Children play with numbers, words, and moving animals with this "Explore-a-Story" book and disk combination. Students can create new story versions. Wow! **A,** $66.	**Place Value I & II** (EME). Students trade cubes and explore place value concepts in an organized fashion. This graphic computer version is easier than hands-on use of Dienes Blocks! **A,** $48.

SECOND—FOURTH GRADE

COMPUTATION	**Stickybear Math 1 & 2** (Weekly Reader). In *Math 1,* students solve sets of addition and subtraction problems; in *Math 2,* children practice multiplication and division. Nice layout and large-size numbers. **A,** $39.95 each; **C,** $29.95 each.	**Arcedemic Skill Builders in Math** (DLM). Students practice basic math facts using an irresistible arcade-game format. Includes helpful management function and speed control. Six-disk series. **A, C, I, T,** $46 each.	**Speedway Math** (MECC). Students practice basic operations with a lively race car theme. Includes teacher options, record-keeping, and built-in timer. Electronic flashcards can be fun! **A,** $55; **GS,** $59.	**Math Blaster Plus** (Davidson). Tutorial, drill, and arcade game activities develop basic math skills. Updated version includes pull-down menus, easier editor, built-in test-maker, and record keeping. **A** (128K), **I,** $49.95.
FRACTION & MONEY SKILLS	**Fraction Concepts Inc.** (MECC) Students learn basic concepts and vocabulary as they manipulate fractions in a factory. Includes four lively activities. **A,** $55.	**Pizza Fractions** (HRM). Students take a job in a pizza parlor where they must slice pizza into fractional parts according to customer requests. Five levels of difficulty. Inventive and friendly! **A, I,** $49.	**Money Squares** (Gamco). Two players compete by answering questions and computing coin values to earn enough "money" to buy tic-tac-toe squares. Includes record keeping and teacher options. **A, C, TRS,** $54.95.	**Money Works** (MECC). Students learn to recognize and count money, make purchases, count change, and even design and print their own currency! Includes four separate levels. **A,** $55; **GS,** $59.
GEOMETRY & MEASUREMENT	**LOGO** (any version). Students use the LOGO language's turtle geometry to actively explore angles and geometric relationships in meaningful new ways. Endless possibilities! LOGO programs are available for all major computer brands. Prices vary.	**Bumble Games** (Learning Co.). Students explore concepts of "greater than" and "less than" as they hunt for objects and characters on x-y grids. Introduces number lines, plotting, even positive and negative numbers. **A, C,** $54.95.	**Clock Works** (MECC). Students practice telling time using both analog and digital clocks. Features both Arabic or Roman numeral clock faces, multiple levels of difficulty, and teacher options. **A,** $55; **GS,** $59.	**Time Explorers** (Gamco). Two players work their way through cavern tunnels to discover gold by answering time-related questions. Students set clock hands given digital time or the time in words. Teacher management included. **A, C, TRS,** $54.95.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

MATH

4 to 8

188 SOFTWARE HITS

FOURTH—SIXTH GRADE

SKILLS	RECOMMENDED SOFTWARE			
COMPUTATION & CONCEPTUAL THINKING	**Number Munchers** (MECC). Students guide a "muncher" through grids, looking for numbers that meet a given criterion (prime, factors, multiples, equalities, or inequalities). Teacher options included. **A**, $49; **GS**, $55.	**Conquering Whole Numbers** (MECC). Students practice addition, subtraction, multiplication, and division with whole numbers. Includes favorite problem-solving games. Comprehensive and well-conceived. **A**, $55; **GS**, $59.	**Guesstimation** (EME). Players build estimation skills with whole numbers, integers, fractions, and decimals using a number line. A motivating game format + scoring = fun! **A**, $49; **C**, $50.	**Power Drill/Get to the Point/Partial Fractions** (Sunburst). *Power Drill* reinforces computation and estimation skills; *Get to the Point*, basic decimal operations; students multiply and divide fractions with *Partial Fractions*. **A, C, I, T, TRS**, $65 each.
GEOMETRY & MEASUREMENT	**LOGO** (any version). Students use the LOGO language's turtle geometry to actively explore angles and geometric relationships in meaningful new ways. All major computer brands. Prices vary.	**Explorer Metros** (Sunburst). Students use this novel simulation for estimating metric lengths, weights, volumes, and temperature on a foreign planet. Use with metric measuring devices. **A**, $65.	**Exploring Tables & Graphs II** (Weekly Reader). Students experiment with tables and picture, bar, line, and area graphs. A top-quality introduction to understanding and creating graphs and tables. **A**, $34.95	**The Factory** (Sunburst). Students create geometric "products" on a simulated assembly line. Helps in understanding sequence, logic, and efficiency as well as geometric construction. **A, AT, C, I, TRSC**, $65.
WORD PROBLEMS	**Sailing Through Story Problems** (DLM). Students practice reading maps and charts and working with money as they strive to become captain of their own pirate ship. Requires players to label answers. **A**, $46.	**Math Word Problems** (Weekly Reader). Teachers can select the right word problems in any of the four basic operations and adjust the program up or down to match student progress.	**Word Problems** (Gamco). A straightforward drill program with two difficulty levels to choose from for word problems using any basic operation. **A, C, TRS**, $69.95.	**Survival Math** (Sunburst). Players can choose to run a travel agency or hot dog stand, build a playroom within a given timeframe and budget, or make shopping price comparisons. **A, AT, C, TRS**, $65.

SIXTH—EIGHTH GRADE

PROBLEM SOLVING & CONCEPTUAL THINKING	**Math Shop** (Scholastic). Ten busy store owners need students' problem solving skills to serve their customers. Many teacher options including a worksheet generator! **A, I, T**, $69.95.	**Strategies in Problem Solving** (Scott, Foresman). Players learn techniques for solving nonroutine word problems on probability and problems with two variables. Consists of two separate packages. **A**, $49.95 each.	**Playing to Learn** (HRM). Four math games challenge students to strengthen their estimation, logic, thinking, factoring, and basic math skills. **A, C**, $69.	**Edu-Calc** (Grolier). Students explore population comparisons, science lab, budgeting, and scheduling as they learn how to use an electronic spreadsheet. Comprehensive tutorial introduces speadsheets gently. **A, C, I**, $64.95.
GEOMETRY & MEASUREMENT	**Coordinate Math** (MECC). Students practice map reading and coordinate geometry skills in these newly revised versions of the popular *Nomad*, *Snark*, and *Radar* games. **A**, $49; **GS**, $55.	**The Geometric preSupposer** (Sunburst). Students make geometric constructions, measure angles, lengths, areas and circumference, then experiment with combinations of these measures. Thorough! **A**, $99.	**Creativity Unlimited** (Sunburst). Students explore tessellations by moving, rotating, or repeating given shapes. Can edit shapes or create your own. Flexible and original with endless possibilities! **A**, $65.	**Problem-Solving Strategies** (MECC). Students collect data, produce charts, make generalizations, and discover strategies for solving classic geometric problems. Ranges from simple to complex problems. **A**, $55; **GS**, $59.
PRE-ALGEBRA	**Guess My Rule** (HRM). Students visually experience abstract algebraic concepts such as variable, relation, and function, while guessing rules that are instantly graphed. Includes a wide range of difficulty. Write and add your own rules. Nice! **A**, $69.	**Tobbs Learns Algebra** (Sunburst). Varying levels of difficulty develop students' algebraic thinking, hypothesis-making and testing abilities, and problem solving skills. Helps players discover relationships between unknowns. **A, TRS**, $65.	**Alge-Blaster** (Davidson). Students practice algebra problems in five subject areas: positive/negative numbers, mononomials and polynomials, factoring, solving equations, and systems of equations. Comprehensive with large print. **A, C, I**, $49.95.	**Balance!** (HRM). Students see their math equations in action as they work to keep a graphic seesaw balanced. Catchy presentation. **A, C**, $60.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

188 SOFTWARE HITS

KINDERGARTEN—FIRST GRADE

SKILLS	RECOMMENDED SOFTWARE			
SCIENCE READINESS	**Animal Photo Fun** (DLM). Six colorful activities relate animals with their habitats while developing discrimination, classification, visual perception, and memory skills. **A**, $32.95.	**Dinosaurs** (Advanced Ideas). Students match, sort, and classify different types of dinosaurs by where they live and whether they are plant or meat eaters. Features five games. Lively graphics! **A**, $39.95; **C**, **I**, $34.95.	**Observation and Classification** (Hartley). Students observe patterns, parts, and positions, then select categories based on use and function. Four games with three levels of difficulty. Part of *Early Discoveries* series. **A**, $35.95.	**Exploring Your World** (Grolier). Two disks include *All About You*, which covers matching and placing body parts, and *The Weather*, which allows students to create different weather scenes. Fun! **A, C**, $54.95.
SOCIAL STUDIES READINESS	**Stickybear Town Builder** (Weekly Reader). Students build their own towns, complete with roads, parks, bridges, and so on, then read maps and compasses to to find hidden keys. **A**, $39.95; **C**, $29.95.	**Richard Scarry's Best Electronic Word Book Ever!** (Mindscape). Players practice sight vocabulary by moving Lowly Worm through six environments filled with words and objects. **A, C**, $34.95.	**Kids at Work** (Scholastic). Students build original city or farm scenes from picture blocks of different shapes which they can print or save on disk. Can create your own picture blocks. **A, C**, $29.95.	**Moptown Parade** (Learning Co.). Students practice pattern and color recognition as they classify, discriminate, and sort Gribbets and Bibbets by attributes. Seven classic games. **A, C**, $59.95.
PROBLEM SOLVING SKILLS	**Iggy's Gnees** (Sunburst). Students help Iggy the Inchworm categorize shapes and colors to fit a given rule. After examining two shape groups, players must determine what a "gnee" is, then build their own "gnee" using the secret rule. **A, C**, $65.	**Shapes and Patterns** (Mindscape). Students match shapes, find common shapes in different objects, and practice pattern discrimination. Includes utilities to create your own activities and keep records. **A**, $49.95.	**Muppetville** (Sunburst). Students manipulate shapes, symbols, numbers, and colors as they accompany Kermit the Frog on a unicycle ride through Muppetville. Features many problem solving activities. **A, GS**, $65.	**Little Riddle** (Hartley). Students read short stories, then draw conclusions based on given information. Topics include animals, places, and people. Makes an ideal group activity! Can create your own riddles. Includes record-keeping. **A**, $39.95.

SECOND—FOURTH GRADE

SCIENCE PROCESS SKILLS	**Odell Lake** (MECC). Students assume the roles of various species of fish and learn about food chains and animal interactions as they try to survive. Newly enhanced version offers realistic graphics, game scoring, and lively action. **A**, $55; **GS**, $59.	**Animal Kingdom** (Unicorn). Students discover prehistoric and jungle fish, insects, reptiles, amphibians, and birds with six captivating science, language, and memory activities. Colorful and motivating! **A, C**, $34.95.	**Who Am I?** (Focus Media). Students view pictures and gather clues to identify plants and animals. The fewer used to identify the specimen, the higher their score. Solid and comprehensive. Set of three programs. **A**, $45 each or complete set for $89.	**Explore-A-Science: The Desert Habitat** (Collamore). Students investigate and play with the given desert scene, labelling plants and animals, rearranging text and graphics, and documenting their findings by writing field notes on the screen. **A**, $66.
SOCIAL STUDIES SKILLS	**All About America** (Unicorn). Seventeen stories in large-sized text introduce students to American history highlights. Develops vocabulary, reading comprehension skills as well. Nice graphics! **A, AM, AT**, $49.95.	**Exploring Tables and Graphs I** (Weekly Reader). Students experiment with tables and graphs and how they are used. Real-life topics include endangered species, languages, and populations. Useful organizational tool! **A**, $34.95.	**Friendly Filer, 128K version** (Grolier). Activities disks ($19.95 each), and workbooks ($2.99 each) for social studies or science are ready-made bonuses to a most useful tool program. Easy to use. **A, C, I**, $59.95.	**Timeliner** (Tom Snyder). Teachers or students can create timelines for ordering historical events. Players can build and print their own or examine given samples. Flexible, quick, and easy to use. **A**, $59.95.
PROBLEM SOLVING SKILLS	**Creature Creator** (Britannica). Students practice sequencing, discrimination, memory, and programming skills as they choose among given body parts to create or match weird creatures that dance. Original and fun! **A, C, I**, $19.95.	**Gnee or Not Gnee** (Sunburst). Given two sets of shapes, "gnees" and "not gnees," students must determine a secret rule and decide which of four new shapes are "gnees." **A, C, I, TRSC**, $65.	**Classification** (EME). Students examine a group of objects and determine which one is different based on one, two, or three characteristics: a useful skill for budding scientists. **A**, $39.	**Dyno-Quest** (MindPlay). Students observe, analyze, and organize facts about eighteen different dinosaurs as they travel in time through three eras. Includes cutomizing options, maps and fact sheets. Great graphics! **A, I**, $49.99.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

SCIENCE

4 to 8

188 SOFTWARE HITS

FOURTH—SIXTH GRADE

SKILLS	RECOMMENDED SOFTWARE			
LIFE SCIENCE	**The Body Transparent** (Britannica). In Game 1, students move bones and organs to correct locations. Game 2 teaches facts and functions of body parts. Players can create their own anatomy games in Game 3. **A, C, I,** $44.95.	**Botanical Gardens** (Sunburst). Students experiment with growing mystery plants by altering environmental variables, collecting data, and reading graphed information. Can create their own seeds. Wow! **A,** $65.	**The Balance in Nature** (Focus Media). Four interactive simulations present an underwater ecosystem and the imaginary creatures living there. Students collect data and observe interactions. Nice animated graphics. **A, C,** $85.	**Health Watch** (Mindscape). Students play three fast-paced games designed to promote better understanding of nutrition, dental hygiene, and physical fitness and exercise. Entertaining and instructive. **A,** $49.95.
EARTH SCIENCE	**Mickey's Space Adventure** (Sierra On-Line). Students learn facts about outer space and follow clues as they search the solar system with Mickey and Pluto to recover pieces of Oron's Memory Crystal. Fun adventure! **A,** $29.95; **C,** $24.95.	**M-ss-ng L-nks Science Disk** (Sunburst). A selection from one of 67 informative earth science passages appears with patterns of letters or words missing; students fill in the blanks. Includes teacher options. **A,** $65.	**Friendly Files: Science and Nature Facts** (Grolier). Students learn to use a data base for research and categorizing with this bank of facts about mammals, wildflowers, and manned spaceflight. Used with *Friendly Filer*. **A, C, I,** $19.95.	**Explorer Metros** (Sunburst). Students use this novel simulation for estimating metric lengths, weights, volumes, and temperature on a foreign planet. Use with metric measuring devices. **A,** $65.
SCIENTIFIC THINKING SKILLS	**The Secrets of Science Island** (Grolier). Students consult the *Science Facts You Won't Believe* reference book to gather information and build a shelter in a given amount of time. **A,** $59.95.	**Interpreting Graphs** (Sunburst). Students learn to read graphs, then use the information as clues. Includes many scientific graph examples. **A, I, T,** $65.	**Temperature Experiments** (Hartley). Students use two heat sensor probes to record and graph temperatures over a period of time. **A,** $69.95.	**Playing With Science Part 1: Temperature** (Sunburst). Students use up to three thermometers simultaneously as they experiment with over 30 temperature activities. **A,** $85.

SIXTH—EIGHTH GRADE

LIFE SCIENCE	**Discovery Lab** (MECC). Students experiment on five imaginary organisms to determine their characteristics. Players control variables, observe, and record results. Great simulation of the scientific process at work! **A,** $55; **GS,** $59.	**The Human Pump** (Sunburst). Three activities teach and review the anatomy and physiology of the heart. Students learn the effects of smoking, salt, exercise, etc. Informative and well-designed. **A,** $65.	**Food for Thought** (Sunburst). Students learn the nutrients that different foods provide, then consult a built-in data base to answer questions. Can add your own data. Easy and fun to use! **A,** $65.	**Cardiovascular Fitness Lab** (HRM). Students use a heart-rate sensor to record pulse and monitor cardiovascular health, including effects of smoking, coffee, and so on. Includes experiment demonstration disk. **A, C, I,** $175.
EARTH SCIENCE	**Sky Lab** (MECC). Students learn astronomy basics in a graphically involving manner, relating in-sky and on-earth observations. Includes demonstration, discovery, and test activities. **A,** $55; **GS,** $59.	**Chem Lab** (Simon & Schuster). Students conduct over 50 experiments using robot arms for handling chemicals and equipment. Features thousands of chemical combinations to create without danger. **A, C, I,** $39.95.	**Geology in Action** (HRM). Students learn basic geological concepts while experimenting with different variables affecting landscape evolution. Solving innovative puzzles depends on understanding the comprehensive tutorial. Includes help screens. **A,** $69.	**Dating and Geologic Time** (D.C. Heath). Students select an unknown geological sample, identify it, and determine its age through explorations. Realistic! **A,** $75.
SCIENTIFIC THINKING SKILLS	**Science Square-Off** (Scott, Foresman). Students review scientific data in Life, Earth, or Physical Science. Includes test generators and a tic-tac-toe format for quiz games. Three separate packages. **A,** $49.95 each.	**Science Toolkit-Master Module** (Broderbund). Students measure and record temperature, light, speed, and response time with interfaced probes. **A,** $69.95.	**Discovery! Experiences in Scientific Reasoning** (Milliken). Students observe, collect data, evaluate, and test their hypotheses in 10 varied environments. Highly flexible and open-ended. **A,** $150.	**Bank Street School Filer Data Bases** (Sunburst). Students can use *Animal Life*, *Endangered Species*, *Space*, and *Astronomy* data bases with the *Filer* to develop analytical and classification skills. **A, C,** $65 each.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

COPY

NOTES

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

TEACHER'S GUIDE

It's January — what could be a better topic for discussion than the weather? This month's poster is a great place to start. It shows how computers are used in weather forecasting, describes (and helps kids catalog) different kinds of clouds, and lists some facts about weird weather happenings. The poster also starts kids thinking creatively about the weather through poetry, and even provides a short BASIC program to put Jack Frost to work on the classroom computer screen. On the flipside of the poster are blackline masters that reinforce and extend the poster material.

USING THE POSTER

The poster is divided into five main sections. Here is how to get the most from each.

Computers and the Weather Start with this introduction to how meteorologists use computers to help predict the weather. Discuss with students why it's important for meteorologists in the United States to know what the weather is like all over the world *(because weather patterns move around the globe; for example, a storm out to sea may eventually end up on the U.S. coastline).* Invite a local meteorologist or weathercaster to come in and talk to your class. Your students might like to know more about the instruments used in weather watching (from thermometers to computers) and about important weather trends for your area. Or your class can create its own weather forecasts using a new computer program that provides guided access to "live" weather data: *The Accu-Weather Forecaster* (for IBM and Macintosh computers; requires modem for use), $89.95, Metacomet Software, P.O. Box 31337, Hartford, CT 06103.

Weather Poems Encourage kids to express their feelings about the weather through poetry. Use poetry software like *Poetry Express* (Mindscape) if children are having trouble getting started. Or use the word processor to create "shape" poems. To do this, have kids use tracing paper to outline a weather object (such as a cloud, sun, thermometer, or rainbow) and then tape the paper over the computer monitor. Children should then type their poems staying inside the tracing.

Name That Cloud Clouds are great weather indicators, and they're fun to look at and identify. There are many other types of clouds than just those shown on the poster. Have kids research different cloud types and report on them to the class. Then help them set up their Class Cloud Watch data base, using your data base program and the sample record on the front of the poster. (With older students, you might expand the data base to include fields for temperature, barometric pressure, wind speed/direction, and precipitation level and other weather variables. Students can gather data through direct observation and from TV or newspaper reports.) When the data base contains several weeks' worth of daily entries, assist students to search the file for local weather trends (such as cloudless skies on the windiest, coldest days). As an extension activity, students could use a graphing program to chart cloud occurrence and other weather variables.

Weird Weather Awards Even though scientists are getting better at predicting the weather, sometimes it does some pretty unexpected things — like snow in June. Have children read these weather stories, and then do some research to find other interesting facts, like the size of the largest hailstone or the largest raindrop. They can then use a graphics program like *Principal's Assistant* (Mindscape) or *Certificate Maker* (Springboard) to create humorous "Weird Weather Awards."

Jack Frost Nipping at Your-...Computer? This BASIC program for Apple computers will present a screen full of asterisks, which will remind children of frost on a window. Challenge your programmers to add "snowflakes" to the window by changing the values for Y in line 30. To make the program present a new pattern every few seconds, add these lines:

```
91 FOR D = 1 TO 200: NEXT D
92 GOTO 20
```

WORKSHEET ANSWERS

Reading the Thermometer — This worksheet will help introduce primary graders to the thermometer. Tell students that the thermometer contains mercury, which rises as the temperature goes up, and falls as the temperature goes down. Tell them that they can read the temperature by looking at the numbers on the thermometer next to the top of the mercury.

The answers to the worksheet are: **1.** 32 (the temperature at which water freezes); **2.** 212 (the temperature at which water boils); **3.** 70 (a typical summer temperature); **4.** 0 (a very cold winter temperature). **Bonus:** Responses will vary.

Reading a Weather Map — This worksheet introduces intermediate students to the skills needed to read a weather map.

The worksheet answers are as follows: **1.** Detroit, Salt Lake City; **2.** Seattle, New York; **3.** 15; **4.** Los Angeles; **5.** Dallas; **6.** Answers will vary. **Bonus:** It will gradually get cloudy and start to snow as the low pressure system moves closer. The temperature will drop as the cold front advances.

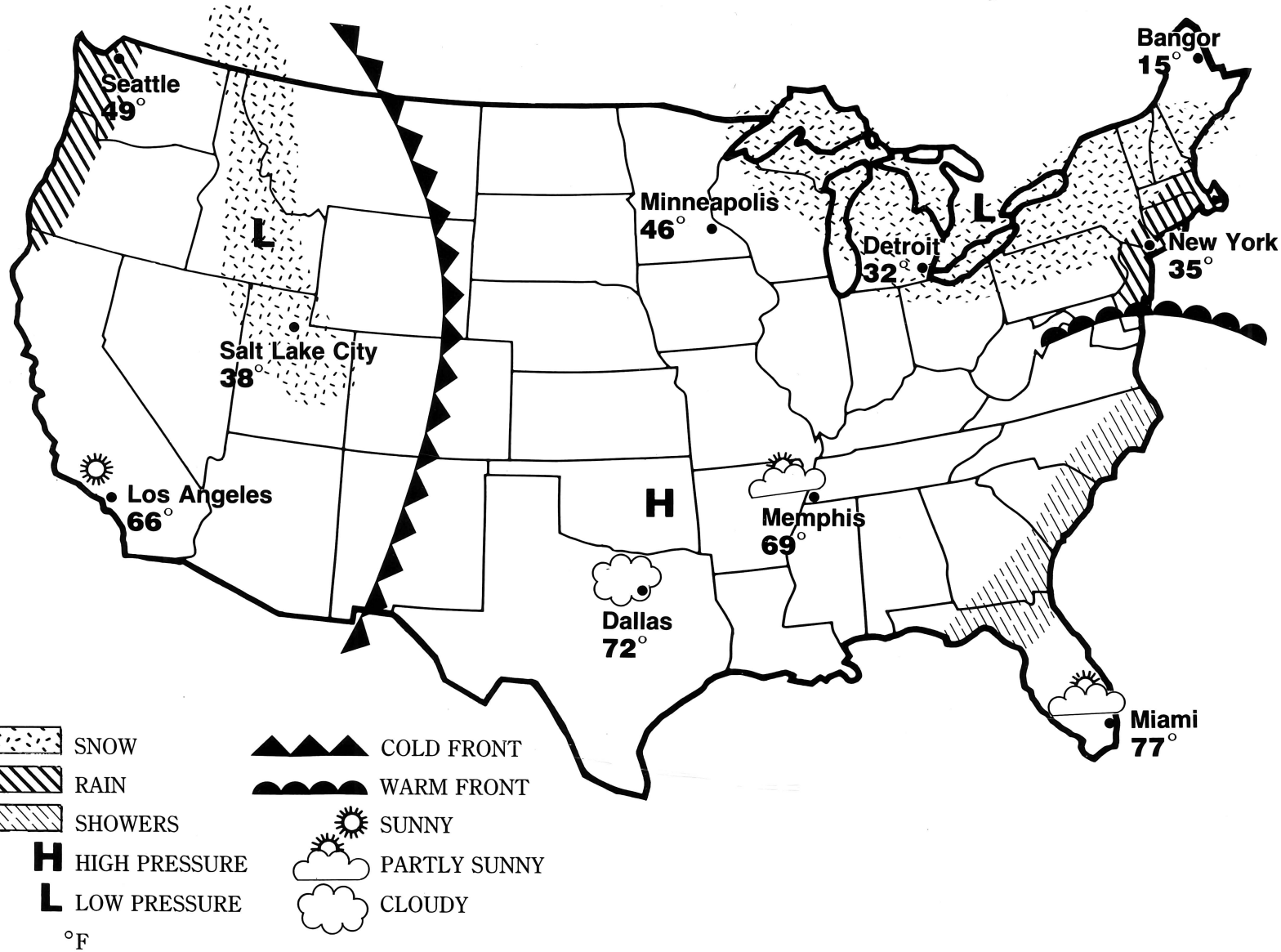
READING
A WEATHER MAP

NAME: _____

COPY

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

INTERMEDIATE



(page 1)

Permission granted to copy for classroom use. Copyright 1988 by Scholastic Inc.

COPY

INTERMEDIATE

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

READING
A WEATHER MAP

DIRECTIONS: A weather map can tell you what the weather is like now, but it can also help predict the weather. Look at the weather map on page one. It shows a typical day in January in the United States. Then use the information in the fact box to answer the questions about the weather map.

FACT BOX

Here are some weather facts that will help you answer the questions about the weather map.

- In the Northern Hemisphere (where the United States is), the weather moves from west to east.
- High pressure usually brings clear skies, and low pressure brings clouds.
- A cold front is a mass of air that has been made cool by the land (or water) underneath it. The symbol for a cold front shows where the front edge of the cold air mass is located.
- A warm front is air that has been made warmer. The symbol for a warm front goes in front of the warm air mass.

1. In which of the cities shown is snow falling? _____
2. In which cities is it raining? _____
3. What is the temperature in Bangor? _____
4. In which city is the sun shining? _____
5. In which city is it cloudy? _____
6. What do you think the weather is like in your city? _____

BONUS: If the cold front by Salt Lake City keeps moving east, what do you think the weather in Minneapolis will be like over the next few days?

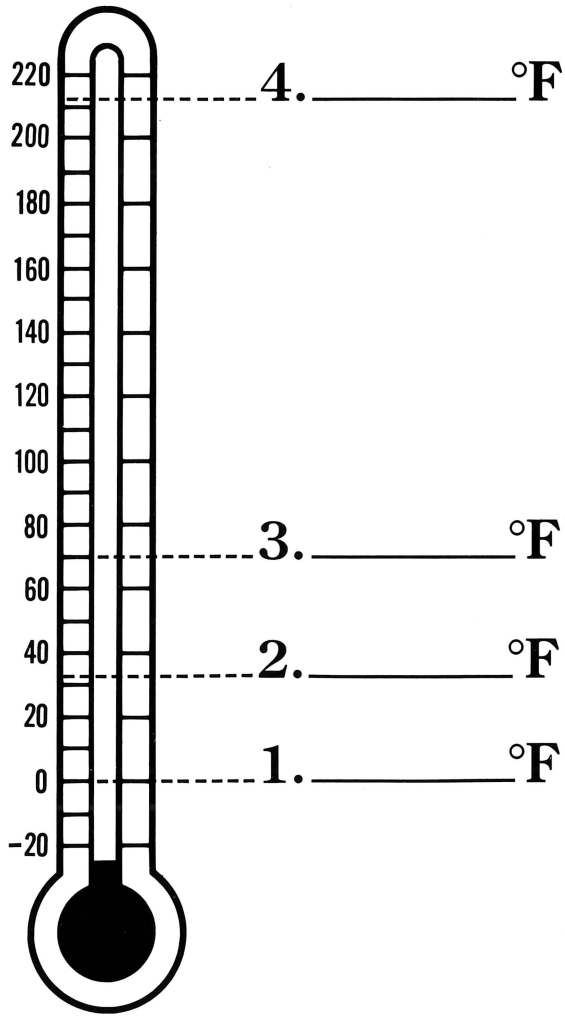
PRIMARY

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

READ THE THERMOMETER

DIRECTIONS: Look at the thermometer below. The mercury is only at the bottom of the thermometer. Use a black crayon to color in the mercury up to line 1. What temperature is this? Write the temperature in the blank next to line 1. Next, color in the mercury up to line 2, and write this new temperature in the blank next to line 2. Do the same things for line 3 and line 4.



BONUS: Draw a picture of the clothes you would wear if the temperature was 32°F.

SOCIAL STUDIES

4 to 8

188 SOFTWARE HITS

FOURTH—SIXTH GRADE

SKILLS	RECOMMENDED SOFTWARE			
GEOGRAPHY	**World Atlas Action/U.S. Atlas Action** (DLM). In these two programs, students use world, national, country, regional, and state maps to learn and review geography facts. Cover cities, mountains, rivers, oceans, and more. **A**, $46 each.	**Where in the World is Carmen Sandiego?** (Broderbund). Students learn about geography and different cultures as they track an international jewel thief. Clues and *World Almanac* also develop research skills. **A, I**, $39.95.	**Travels with Za-Zoom** (Focus Media). Students visit strange lands and must collect and analyze data, such as climate, food, and clothing, to determine where they are. Available in *World* and *U.S.* versions. **A, C, I, T**, $79 each.	**Crosscountry USA** (Didatech). Students take on the role of a truck driver delivering goods across the country. Teaches map reading, strategy, and decision-making skills. Includes teacher options. Realistic graphics! **A**, $39.95.
HISTORY	**Oregon Trail** (MECC). Teams of players gather information and make decisions in a graphic simulation of pioneers travelling to Oregon in 1848. New enhanced version! **A**, $55; **GS**, $59.	**The Sea Voyagers** (Mindscape). Students learn about 30 famous explorers and their explorations. Three games have students match and categorize explorers by country and discovery. **A, C, I**, $49.95.	**Discover the World** (Hartley). Students travel back to 1412 to sail from one of five ports to find a route to the Orient. Players search for the best routes, establish territories, avoid pirates, and more! **A, I**, $89.95.	**Discovery and Exploration** (Mindscape). Students use clues to discover where they are and what historical event is taking place. Motivating adventure game format. **A, I, T**, $39.95.
PROBLEM SOLVING TOOLS	**Timeliner** (Tom Snyder). Teachers or students can create timelines for ordering historical events. Players can build and print their own or examine given samples. Can be used in teams or alone. **A**, $59.95.	**Friendly Filer** (Grolier). Students learn data base management by searching for answers in the built-in practice data base. Files include countries and U.S. and world facts. Easy to use. **A, C, I**, $59.95.	**Easy Graph II** (Grolier). Students create pictographs, bar graphs, pie charts, and line graphs in this enhanced version. Includes full tutorial and large printing. Truly easy! **A**, $59.95; **C, I**, $49.95.	**Exploring Tables & Graphs II** (Weekly Reader). Students experiment with tables and picture, bar, line, and area graphs. A top-quality introduction to understanding and creating graphs and tables. **A**, $34.95.

SIXTH—EIGHTH GRADE

GEOGRAPHY	**The Language of Maps A & B** (Focus Media). Students become actively involved in reading and interpreting maps as they learn to speak in map languages of colors, lines, words, and symbols. Includes built-in glossary. Comprehensive and interactive! **A**, $169.	**Countries and Continents** (Mindscape). Students learn important facts about 142 countries as they play four motivating games. Includes a built-in data base. **A**, $49.95.	**World Geography Explorer Series** (Mindscape). Students use clues to try to discover where they are and what historical event is taking place. Includes four programs: *Central U.S, Western Europe, Asia and Australia,* and *Eastern U.S.* **A, I, T**, $150.	**States and Traits/European Nations and Locations** (Britannica). Two programs. Students move states and countries to proper locations on a map, identify capitals and landmarks and more. Can add your own data. Instructive! **A, C, I**, $44.95 each.
HISTORY	**Decisions, Decisions: Colonization** (Tom Snyder). Students examine our history and make decisions concerning colonization in outer space. A thoroughly original simulation! **A, I**, $89.95.	**The Time Tunnel: Series 1** (Focus Media). Students collect and analyze data as they "meet" and try to identify famous leaders who opened the door to the New World. Excellent for team competition! **A, C, I, T**, $75.	**Creating the U.S. Constitution** (Educational Activities). Students actively participate in the Constitutional Convention by making decisions and voting. Nice simulation! **A**, $59.95	**To Preserve, Protect, and Defend** (MECC). Students use a built-in data base to help James Madison guard the Constitution. Players must distinguish between delegates and imposters. **A**, $55; **GS**, $59.
PROBLEM SOLVING TOOLS	**Hometown: A Local Area Study** (Active Learning Systems). Students collect data from their local population and use the computer as a tool to organize, summarize, and analyze the data. Fosters research, interpreting, and predicting skills. **A, C, I**, $148.	**The Information Connection** (Grolier). Students learn about telecommunications by using simulated on-line samples. May actually connect with on-line services to research history data in greater depth. **A, C, I**, $79.95.	**Bank Street School Filer** (Sunburst). Students use simple English-language commands to create, edit, sort, and search data base files. Create your own files or use ready-made U.S. or North American data bases ($59 each). **A, C, GS**, $99.	**Surveys Unlimited** (Mindscape). Students create surveys, enter responses, analyze data, and print it out. Includes pre-designed library of surveys to get students going. Easy to use! **A**, $49.95.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

TEACHER UTILITY PROGRAMS

188 SOFTWARE HITS

QUIZ-MAKERS

Tic Tac Show (Advanced Ideas). Players compete in a combination tic-tac-toe and quiz show question-and-answer game on any topic. Use sample games or create your own. Curriculum-related games disks ($19.95 each) are useful, too. **A, C, I,** $39.95.

The NEW Game Show (Advanced Ideas). Faster-moving than its predecessor, this easy-to-author program is both fun and instructive! Also features many separate data disks ($19.95 each). **A, C, I,** $39.95.

Lucky's Magic Hat (Advanced Ideas). Leprechauns and words *with* pictures help review any topic. Works best with younger students. Write your own quizzes or use ready-made language skills disk ($19.95). **A,** $39.95.

Square Pairs (Scholastic). In a Concentration game format, students match words with synonyms, antonyms, or other related forms. Easy to create your own games. **A,** $24.95; **C,** $19.95.

PUZZLE-MAKERS

Crossword Magic (Mindscape). Create your own crossword puzzles to review vocabulary in any subject. Students develop spelling skills as they create their own puzzles. **A, C, I,** $59.95.

Wordsearch (Hartley). Create wordfind puzzles for drilling students on vocabulary, sight, and spelling words. Teacher options control level of difficulty. MS-DOS version also generates crossword puzzles. **A,** $29.95; **I, T,** $49.95.

Super Wordfind (Hartley). Teachers and students can use this program to create word searches made up of words from their own word lists. Also create more complex searches that require written clues. **A,** $49.95.

Print Your Own Bingo Plus (Hartley). Teachers can create many varieties of Bingo cards that develop reading, vocabulary, and sight word skills. Includes large print option. Save games on disk. **A,** $49.95.

DESKTOP PUBLISHERS

Principal's Assistant (Mindscape). Design and produce your own achievement certificates, newsletters, calendars, parent letters, and worksheets. Includes seven fonts and 180 graphics, all easy to use. **A,** $59.95.

Certificate Maker (Springboard). Choose from over 200 templates of partially completed certificates, add one of 24 borders and five type fonts, type in names, and print. A snap! **A, C,** $49.95; **I,** $59.95.

The Print Shop (Broderbund). Design signs, banners, letterheads, greeting cards, and flyers with this easy-to-use program. Includes eight type fonts and a graphics editor. **A,** $49.95; **AT, C,** $44.95; **I,** $59.95; **M,** $79.95.

Springboard Publisher (Springboard). Create newsletters, signs, banners, and more. Features flexible page layout, built-in graphics, and a variety of type fonts and sizes. **A,** $39.95.

WORD PROCESSING AND KEYBOARDING

Bank Street Writer III (Scholastic). This word processing program simplifies editing and redrafting for students. Teachers can input their own files. Includes 20-column version, spell checker, and thesaurus. **A, GS, I, T,** $79.95.

Magic Slate (Sunburst). Simple word processor in which teachers can use students' writing, grammar text, story starters, and so on to teach proofreading and editing skills. Includes 20-, 40-, and 80-column versions plus seven different type styles. **A,** $99.95.

Type to Learn (Sunburst). A language-based typing program with two vocabulary levels, two print sizes, automatic record keeping, and game breaks. Ideal for second-eighth graders. Teachers can brush up, too! **A,** $75.

Microtype, the Wonderful World of PAWS (South-Western). Young students learn the alphabet; older players practice keyboarding. Amusing graphics and games suited for younger students. **A, C, I,** $39.95.

SCIENCE AND SOCIAL STUDIES HELPERS

Bank Street School Filer (Sunburst). Students use simple English-language commands to create, edit, sort, and search data base files. Create your own files or use ready-made. Helpful teacher's guide. **A, C, GS,** $99.

Friendly Filer (Grolier). Students learn data base management by searching for answers in the built-in practice data base. Includes a complete tutorial. Easy to create, edit, add, sort, save, and print files. **A, C, I,** $59.95.

The Information Connection (Grolier). An ideal way for students to learn about telecommunications by using simulated on-line samples. May actually connect with on-line services to research history data in greater depth. **A, C, I,** $79.95.

SVE Autograph (SVE). Create charts of information and turn them into picture, bar, line, or circle graphs. Use with students or for administrative purposes. Includes color option for printouts. Flexible! **A,** $69.

PRACTICAL PERIPHERALS

Muppet Learning Keys (Sunburst). This alternative keyboard features letter keys in alphabetical order instead of QWERTY. Includes *Muppets on Stage* program. Works with over a dozen Sunburst programs. Ideal for non-readers! **A, C, I,** $99.

Touch Window (Sunburst). Attach this peripheral to your monitor screen and use as an alternative to the keyboard. Ideal for special needs students. **A,** $199.95.

ECHO Voice Synthesizer (Scholastic). Install this device inside your computer so that any typed text is spoken. Offers two voice modes: unlimited vocabulary in a robotic voice students enjoy, or 700-word vocabulary in a natural-sounding female voice. **A, I,** $99.95.

LittleJack (Scholastic). These lightweight stereo headphones plug into your computer and allow students to run programs with sound effects without disturbing the rest of the class. **A,** $29.95.

KEY

A = Apple II+/IIe/IIc
AM = Amiga
AT = Atari
C = Commodore 64/128
GS = Apple IIGS
I = IBM PC/PCjr
M = Macintosh
T = Tandy 1000 series
TRS = TRS-80 Models III/4
TRSC = TRS-80 Color Computer

188 SOFTWARE HITS

●Active Learning Systems
P.O. Box 1984
Midland, MI, 48640
517/790-1731
Circle 111 on Product Info. Card

●Addison-Wesley
School Products Division
2725 Sand Hill Road
Menlo Park, CA 94025
617/944-6793
Circle 112 on Product Info. Card

●Advanced Ideas
2902 San Pablo Ave.
Berkeley, CA 94702
415/526-9100
Circle 113 on Product Info. Card

●Britannica Software
185 Berry St.
San Francisco, CA 94107
415/546-1866
Circle 114 on Product Info. Card

●Broderbund Software
17 Paul Dr.
San Rafael, CA 94903
415/479-1700
Circle 115 on Product Info. Card

●Collamore Educational Publishing
125 Spring St.
Lexington, MA 02173
800/235-3565
Circle 116 on Product Info. Card

●Creative Publications
5005 West 110 St.
Oak Lawn, IL 60453
800/435-5843; 312/767-2374
Circle 117 on Product Info. Card

●Davidson & Associates
3135 Kashiwa St.
Torrance, CA 90505
800/556-6141; 213/534-4070
Circle 118 on Product Info. Card

●D.C. Heath and Company
125 Spring St.
Lexington, MA 02173
800/235-3565
Circle 119 on Product Info. Card

●Developmental Learning Materials (DLM)
200 Bethany Dr.
Allen, TX 75002
800/527-4747
Circle 120 on Product Info. Card

●Didatech Software
P.O. Box 34069
Seattle, WA 98124
604/687-3468
Circle 121 on Product Info. Card

●Educational Activities, Inc.
P.O. Box 392
Freeport, NY 11520
800/645-3739; 516/223-4666
Circle 122 on Product Info. Card

●Educational Materials and Equipment Co. (EME)
Old Mill Plain Rd.
Danbury, CT 06811
800/345-2050
Circle 123 on Product Info. Card

●Focus Media, Inc.
839 Stewart Ave.
P.O. Box 865
Garden City, NY 11530
800/645-8989; 516/794-8900
Circle 124 on Product Info. Card

●Gamco Industries, Inc.
P.O. Box 1862W
Big Spring, TX 79721
800/351-1404
Circle 125 on Product Info. Card

●Ginn & Co.
191 Spring St.
Lexington, MA 02173
617/863-7711
Circle 126 on Product Info. Card

●Grolier Electronic Publishing
Sherman Turnpike, Dept. 333,
Danbury, CT 06816
800/858-8858
Circle 127 on Product Info. Card

●Hartley Courseware
123 Bridge
Dimondale, MI 48821
517/646-6458
Circle 128 on Product Info. Card

●Houghton Mifflin Company
Educational Software Division
Dept. 26, P.O. Box 283
Hanover, NH 03755
603/448-3838
Circle 129 on Product Info. Card

●Human Relations Media (HRM)
175 Tompkins Ave.
Pleasantville, NY 10570
800/431-2050; 914/769-7496
Circle 130 on Product Info. Card

●Lawrence Hall of Science
University of California
Math/Computer Education Project
Berkeley, CA 94720
415/642-3167
Circle 131 on Product Info. Card

●The Learning Company
545 Middlefield Rd.
Menlo Park, CA 94025
415/328-5410
Circle 132 on Product Info. Card

●MECC (Minn. Educational Computing Corporation)
3490 Lexington Ave., N.
St. Paul, MN 55126-8097
612/481-3500
Circle 133 on Product Info. Card

●Milliken Publishing
P.O. Box 21579
St. Louis, MO 63132-0579
800/643-0008
Circle 134 on Product Info. Card

●MindPlay
82 Montvale Ave.
Stoneham, MA 02180
800/221-7911;617/438-5454
Circle 135 on Product Info. Card

●Mindscape, Inc.
3444 Dundee Rd.
Northbrook, IL 60062
800/221-9884; 312/480-7667
Circle 136 on Product Info. Card

●Random House
201 E. 50th St.
New York, NY 10022
800/638-6460; 212/572-2616
Circle 137 on Product Info. Card

●Scholastic Software
730 Broadway
New York, NY 10003
800/325-6149; 212/505-3537
Circle 138 on Product Info. Card

●Scott, Foresman and Co.
1900 East Lake Dr.
Glenview, IL 60025
312/729-3000
Circle 139 on Product Info. Card

●Sierra On-Line
36575 Mudge Ranch Rd.
Coarsegold, CA 93614
209/683-6858
Circle 140 on Product Info. Card

●Simon & Schuster
1230 Avenue of the Americas
New York, NY 10020
212/698-7000
Circle 141 on Product Info. Card

●Tom Snyder Productions
P.O. Box 2554
123 Mt. Auburn St.
Cambridge, MA 02238
800/342-0236; 617/876-4433
Circle 142 on Product Info. Card

●Society for Visual Education (SVE)
1345 Diversey Parkway
Chicago, IL 60614
312/525-1500
Circle 143 on Product Info. Card

●South-Western Publishing Co.
5101 Madison Road
Cincinnati, OH 45227
513/271-8811
Circle 144 on Product Info. Card

●Spinnaker Software
One Kendall Square
Cambridge, MA 02139
617/494-1200
Circle 145 on Product Info. Card

●Springboard Software
7808 Creekridge Circle
Minneapolis, MN 55435
800/328-1223; 612/944-3915
Circle 146 on Product Info. Card

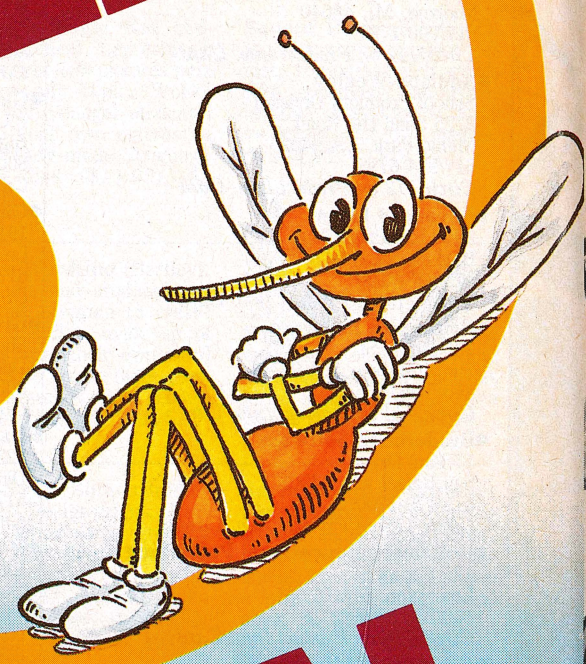
●Sunburst Communications
39 Washington Ave.
Pleasantville, NY 10570
800/431-1934; 914/769-5030
Circle 147 on Product Info. Card

●Unicorn Software
2950 E. Flamingo
Las Vegas, NV 89121
702/737-8876
Circle 148 on Product Info. Card

●Weekly Reader Family Software
245 Long Hill
Middletown, CT 06457
800/852-5000; 203/638-2400
Circle 149 on Product Info. Card

●Word Associates, Inc.
3096 Summit Ave.
Highland Park, IL 60035
312/433-3076
Circle 150 on Product Info. Card ■

THE GOLDEN SPIRAL



CURRICULUM CONNECTIONS

MATH
Basic geometric shapes • Ratios

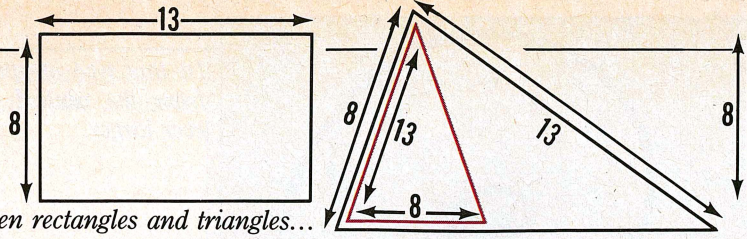
SCIENCE
Spirals and symmetry in nature

ART
Introduction to aesthetics

A Logo turtle, an impish mosquito, and a chambered nautilus teach your students a lesson in natural history...and no one even leaves the classroom!

BY DIANNE HYER AND ROGER ECKHARDT

Dianne Hyer and **Roger Eckhardt** have taught at every grade level from kindergarten through graduate school. They both currently work as scientific staff members at the Los Alamos National Laboratory in Los Alamos, New Mexico.



Golden rectangles and triangles... have "magical repeating power"!

What makes a sunflower so beautiful, a spider's web so pleasing to the eye, and the "lustrous coil" of the chambered nautilus (as Oliver Wendell Holmes described it) such a wonder to behold?

Since the Pythagoreans of ancient Greece, architects, artists, and mathematicians have been fascinated by this same question. They've found their answer, in part, in a mathematical formula known as the "golden ratio."

What's most interesting about this ratio — approximately 13:8 or 1.618 — is the way it can be used to create an unending series of "golden" shapes, all of equal proportion, but of ever increasing size. This "magical" mathematical formula and the shapes it creates are responsible for some of the most exquisite sights in nature.

This teaching unit combines a Logo program, a fanciful short story, and your students' imaginations to explore the "golden ratio" and the way it is applied in nature. Your students will also learn about the chambered nautilus — a sea creature of the Indian Ocean and the South Pacific that creates its own "golden spiral" as it grows to its full size.

No knowledge of Logo programming is necessary to complete this teaching unit. The Logo program on page 45 is ready to type in; just be sure to include any conversions specified for your version of Logo.

TEACHER PREPARATION

Load Logo into your computer. Then type in and define the procedures that correspond to your version of Logo. (Procedures for IBM Logo appear on page 45; conversions for Apple, Terrapin, and Krell versions of Logo are on page 59.)

Before using the program with your students, test the procedures GOLD.NAUTILUS, GOLD.RECTANGLE and GOLD.TRIANGLE to make sure that they work properly. Then save the procedures on a blank formatted diskette under the file name NAUTILUS.

Draw upon the resources of your school library for pictures of chambered nautiluses, including at least one cross-section or an x-ray radiograph of the nautilus' shell.

You may also wish to photocopy and distribute "The Golden Nautilus" story on pages 41 and 42 so your students can follow along as you read it aloud.

WARM UP ACTIVITIES

Start students thinking about shapes and ratios with the following exercises.

Lines of Feeling

Give each child three blank, unlined sheets of paper, and assign the tasks below. As they draw, remind students to do whatever comes naturally to them, without worrying about what their classmates are doing.

1. On the first sheet of paper, draw a line that expresses beauty.
2. On the second sheet of paper, draw a line that expresses ugliness.
3. On the third sheet of paper, draw a line that expresses anger.

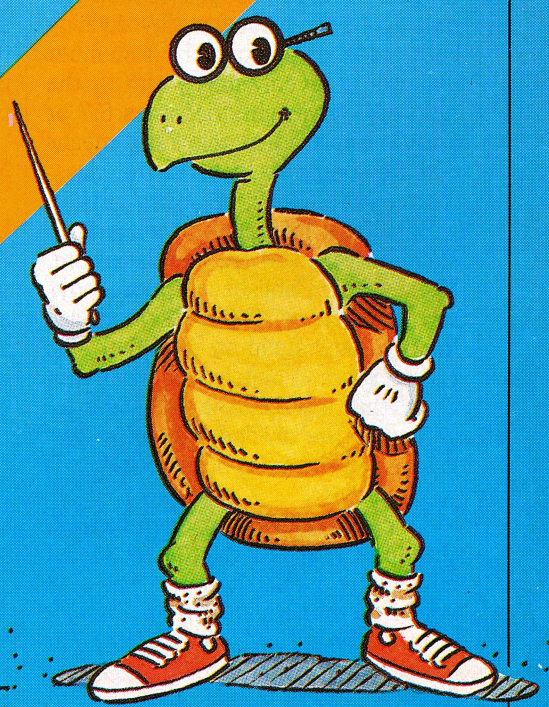
When students are finished, have them compare their three drawings. Tell students that studies conducted by psychologists show the following:

1. When asked to draw a line that expresses beauty, most people draw one line that is smooth, curved, and continuous.
2. To express ugliness, most people draw a line that mixes angles and curves, creating unrelated spaces.
3. For a line that expresses anger, most people draw one line with a lot of sharp waves or zigzags.

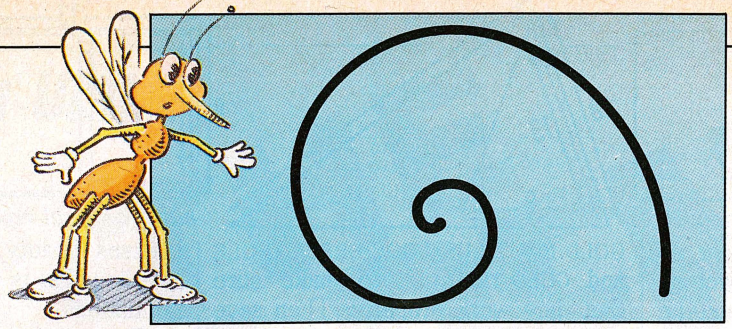
Most Favored Rectangle

Have each student take another blank, unlined piece of paper and draw five or six different rectangles of different shapes and sizes. Then ask each child to study his or her rectangles and label the one he or she likes best.

Tell your class that most people, given the choice, prefer a certain kind of rectangle. On the board, draw a rectangle based on the golden ratio—for example, one that measures 8" x 13". Ask students if their own favorite rectangle is similar in shape. Tell



PHILIP SCHEUER



In this type of spiral, the path from the central point widens ever larger.

them that mathemeticians, scientists, and artists have been so fascinated by this shape over the centuries that it's been called the "golden rectangle."

Explain that many beautiful patterns in nature are based on this shape, including the chambered nautilus. If any of your students knows what a nautilus looks like, have him or her draw one on the chalkboard. Select another student to go to the classroom dictionary or encyclopedia and read aloud the official entry for nautilus. Then pass your collected nautilus photos around the classroom so that each child can take a look at a "real" nautilus before you begin to read out loud.

Ratio Refresher

If you want to review the concept of ratios with your class, try this demonstration. Count aloud the number of boys in your classroom and the number of girls. Say there are 14 girls and 12 boys in your room. The ratio of girls to boys, tell students, is 14 to 12, or 14:12 (also written 14/12). Now what is the ratio of boys to girls? (12:14). If you reduce the ratio to its simplest form by dividing both sides of the ratio by a number that will go evenly into both (2), the ratio of boys to girls becomes 6:7 or 6 to 7. Explain that this ratio means that for every six boys in the classroom, there should be seven girls.

Select six boys and seven girls to stand on one side of your classroom. There should still be six more boys and seven more girls left seated; ask them to now stand on the other side of the room. Point out to your students that whether they all stand together or are divided into these two groups, the ratio of boys to girls will be the same.

To carry the analogy even further, challenge your students to figure out how many girls there are for each boy in the classroom. (*In the example above, divide both sides by six. The answer is approximately 1.17 girls to every one boy in the classroom.*)

When your students are comfortable with ratios, have them go back to their favorite rectangle and calculate the ratio of the long side to the short side. Remind students that the closer this ratio is to 13:8 or 1.618, the closer the rectangle is to being "golden."

READING THE STORY

When you are ready to use "The Golden Nautilus" story in class, boot up Logo and LOAD (or READ) the saved procedures into the computer. You might make the computer monitor more visible to the whole class by placing it on a shelf or putting some books underneath it. If this is not possible, have students in the back of the classroom move their chairs forward for the story reading.

You can choose to read the entire story to the class yourself or, depending on your students' age and reading ability, have children take turns reading aloud.

Whenever you or your readers reach a point in the story where directions are given in italics, use the computer to execute those directions. The resulting graphics allow students to visualize the concept of the golden ratio as it is discussed by the mosquito, the turtle, and the nautilus in the story.

EXTENSION ACTIVITIES

After the reading, go through the Logo procedures GOLD.RECTANGLE and GOLD.TRIANGLE several more times with your students. When they are thoroughly familiar with the story and the Logo graphics, you might assign one or more of the following extension activities to reinforce and expand upon the concepts taught in the story. The extension activities are appropriate for several different grade levels and can be done as group or individual projects.

Spiral Variety

Refer students back to your classroom dictionary for the definition of the word *spiral*: the path of a point circling a central point while continuously receding from or approaching it. Tell children that mathematicians have identified two different types of spirals. One type of spiral is what the nautilus "draws" as it grows to full size, starting at a central point and widening ever larger as it spirals outward (see example at top of this page). Draw an example of this type of spiral on the chalkboard.

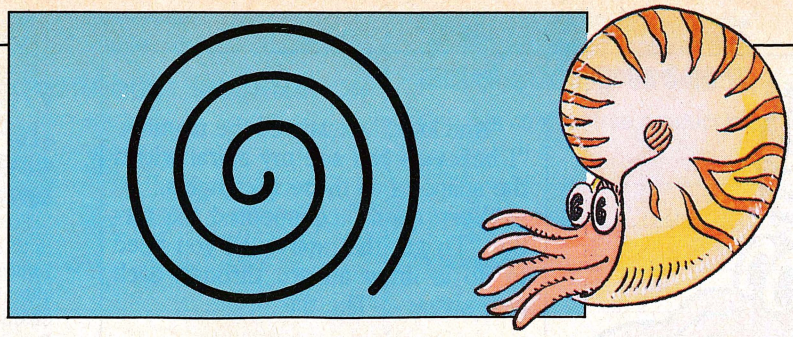
In the second type of spiral, the width of the path remains the same as this spiral grows outward (see example at top of next page). Draw an example of this type of spiral on the chalkboard. Explain that this type is harder to find in nature; it can be more easily identified by looking at a flat coil of rope on a ship's deck or the path traced by the needle on a phonograph record. Some spiders, however, build webs that begin as the first type of spiral in the center and then change to something more like the second kind of spiral farther out.

In addition to the nautilus and some spider webs, there are many other ways that nature has found to use spirals. How many can your students think of? (*Examples might include microscopic foraminifera, many seashell patterns, flowers, tree leaves, human fingerprints, elephant tusks, and in the galaxies and nebulas of the universe.*)

Again using your school library as a resource, have students find pictures of as many different "natural spirals" as they can. Pass these around the classroom, and have children discuss similarities and differences among them. Then ask students to create their own drawings of spirals in nature, using crayons and colored markers. Set up a bulletin board display of your students' spiral art work.

Next, have the children compare these new drawings with the lines they drew to express beauty, ugliness, and anger. Which of these three earlier drawings most resembles nature's spirals?

In this type of spiral, the path from the central point remains the same width.



A Golden Poll

If your students are Logo programmers, challenge them to use Logo to "draw" samples of golden and non-golden triangles and rectangles, saving each shape under a different procedure name. Make a printout of each shape, and mark on the back whether each figure is "golden" or not; that is, whether the ratio of a long side to a short side, for both rectangles and triangles, is 13:8 or 1.618. Post the shapes on a wall, and ask students to select their favorites without looking at the notations on the back. Are golden shapes actually preferred to the non-golden ones?

How Old Thy Chambered Coils?

At maturity, tell children, a chambered nautilus is approximately the size of a grown man's fist, and has approximately 30 different spiraling chambers. If it takes 10 years for the nautilus to reach maturity, as scientists now believe, approximately how long does the nautilus live in each of its chambers before creating and moving on to the next one? Guide your students in figuring out this math problem.

First, they'll need to find the number of months in 10 years *(10 years = 120 months)*. Next, they'll need to divide the total number of months by the number of chambers in a full grown nautilus' shell *(120/30 = 4)*. Thus, your students will find that the chambered nautilus lives an average of four months in each of its chambers.

The Poetic Nautilus

Now that your students have encountered the nautilus in photographs, in your read-aloud story, and on the classroom computer monitor, round out their experience with the poem by Oliver Wendell Holmes called "The Chambered Nautilus." It can be found in any of a number of anthologies of American verse, and may inspire your class to its own spiral poetics!

THE GOLDEN NAUTILUS

Directions: *Load Logo into your computer. Then load the diskette on which you saved the* NAUTILUS *procedures (see page 45.)* LOAD *(or* READ*) the procedures into the computer. Then read the following story to your class.*

Whenever you come to a point in the story where directions are given in italics, follow the directions on the computer as indicated.

With the help of the moonlight, the tiny mosquito Apollo could see his friend, the Logo turtle, swimming in the waters of Savusavu Bay in the Fiji Islands.

"Wait for me!" Apollo cried. "I want to take a swim, too!"

"Don't even joke about that," the turtle yelled back in a serious voice. "You are flying too close to the waves already. If you are not careful, I'm afraid that you'll . . ."

But before the sentence was out of the turtle's mouth . . . PLOP! The mosquito disappeared into a wave.

"Apollo!" the turtle cried. Then he dove down to search the area where the little bug had disappeared. He could not find a sign of his insect friend anywhere.

Quickly the turtle swam to shore. He climbed onto a rock and looked about for someone to help him search. Before long, the turtle saw a spiral-shaped "thing" moving through the water towards him. Then it climbed onto the beach. It was a chambered nautilus.

Type GOLD.NAUTILUS *and press return.*

"Oh, turtle!" the turtle heard the mosquito cry. Then he saw where the voice was coming from. A very wet Apollo squeezed himself out of a gap between the body of the nautilus and its shell.

"What a great ride I just took!" Apollo exclaimed. "Riding in this nautilus' shell is like riding on the inside of a submarine! His empty chambers make him almost weightless, and he can jet through the water like an octopus!"

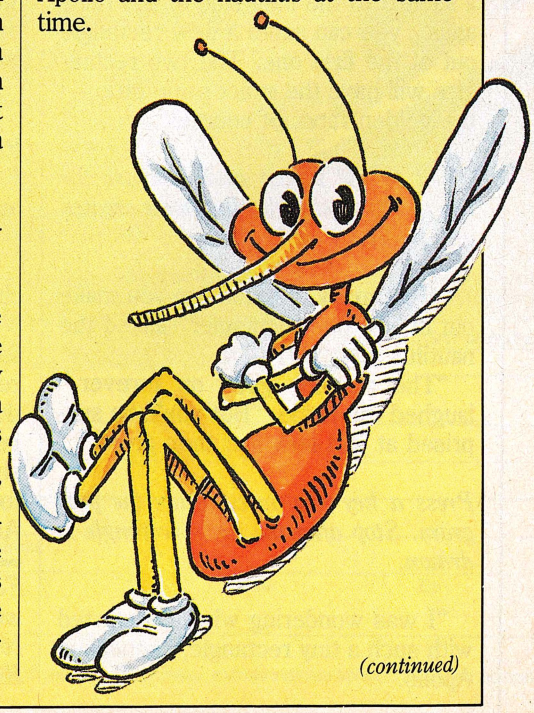
"Do you realize what a scare you just gave me?" the turtle cried out, ignoring the mosquito's excitement. "Are you sure that you are alright?"

But Apollo was not listening. "And you should see how his chambers look from the inside," he continued. "It's like . . . like . . . like . . . looking down a fancy spiral staircase!"

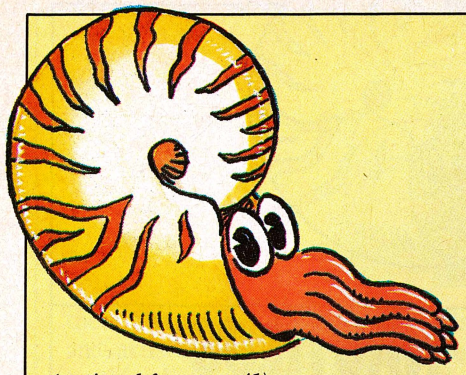
The nautilus puffed out of his shell with pride. "I made each of my chambers as I grew to adult size," he said. "When one chamber got too small for me, I made myself a larger chamber to move into."

"There's a name for the shape your chambers make," mused the turtle. "The spiral shape of the chambered nautilus is known as the *golden spiral.*"

"What's a golden spiral?" asked Apollo and the nautilus at the same time.



(continued)



(continued from page 41)

"Here," said the turtle. "I will show you."

With the sand as his chalkboard and a broken piece of clam shell as his chalk, the turtle drew a rectangle.

Type GOLD.RECTANGLE *and press return. Let the program run its course, but do not press a key yet to continue.*

"See this rectangle?" he asked as he worked. "The ratio of the long side to the short side is about 13 to 8 or 1.618. That ratio is known as the golden ratio."

"What a strange number," said Apollo.

"You are right," agreed the turtle. "But the important thing is that it has a magical repeating power. That's why the Greeks decided to name it the golden ratio."

"What sort of magical repeating power?" asked the nautilus, who was more and more curious. "And what does this have to do with my spirals?"

"Well," said the turtle. "By adding a square to the long side of the rectangle, you can make a new rectangle out of the first one. The two rectangles will have the exact same ratio — the golden ratio, of course!"

Point to the screen and compare the two golden rectangles that were created out of one.

"How many of those can you make out of just one rectangle?" asked the nautilus.

"The number goes on forever," laughed the turtle. "But you'd be surprised at just how fast they grow."

Press a key now to continue the program. Stop after the tenth rectangle is drawn.

"I was wondering why you started with such a tiny rectangle," squeaked Apollo.

"And look!" exclaimed the nautilus. "I believe I can see my spiral within the shape of all those rectangles."

"Very good," commented the turtle. "To get that spiral, all you need to do is draw an arc through each new shape — like this."

Press a key to draw the arc.

The three creatures sat for awhile, looking from the drawing in the sand, over to the nautilus.

"Are there any other shapes that have a magical repeating power, turtle?" asked Apollo finally.

"As a matter of fact, there are," he said. And he began again to draw a picture in the sand. This time the turtle drew a triangle. Two of the sides were equal and longer than the third side.

"Can either of you guess the ratio of the long sides of this triangle to the short side?" asked the turtle.

"I bet it's that magical 1.618 again," called out Apollo, jumping up and down in his excitement.

"Exactly!" said the turtle. "Now," he continued, "if you flip one long side out, and then connect the ends, *voila!* You have another golden triangle!"

Type GOLD.TRIANGLE *and press return. Let the program run its course, but do not press a key yet to continue.*

"And do you get a golden spiral like mine if you draw an arc through the triangles, I wonder?" wondered the nautilus out loud.

"You sure do," replied the turtle.

Press a key to continue the program. Follow the instructions as they appear on your computer screen.

"The spiral *is* like before," exclaimed Apollo. "How neat!"

The three friends continued to chat for awhile, each drawing his own rectangles, triangles, and spirals in the sand. Finally the nautilus suggested that Apollo climb back into his shell so that all three friends could go for an underwater tour of the bay. And that's exactly what they did.

For the IBM Logo program that works with this story, see page 45. Program conversions for Apple, Terrapin, and Krell Logo appear on page 59.

FREE PRODUCT INFORMATION

SOFTWARE

For information on all software advertised in this issue, circle number 1 on the Product Information Card. For information from individual advertisers, circle the numbers indicated below.

Barnum Software: See our ad on page 50. Circle number 11 on the Product Information Card.

C & C Software: See our ad on page 50. Circle number 13 on the Product Information Card.

Computer Literacy Activities Kit: See our ad on page 51. Circle numbers 22, 40 on the Product Information Card.

Davidson & Associates: See our ad on page 7. Circle number 14 on the Product Information Card.

Educational Resources: See our ad on page 55. Circle number 15 on the Product Information Card.

Hartley Courseware: See our ad on page 58. Circle number 16 on the Product Information Card.

J & S Software: See our ad on page 11. Circle number 18 on the Product Information Card.

Logo Computer Systems Inc.: See our ad on page 46. Circle number 28 on the Product Information Card.

Random House: See our ad on page 57. Circle number 25 on the Product Information Card.

Society for Visual Education: See our ad on page 9. Circle number 26 on the Product Information Card.

Talking Textwriter: See our ad on Cover 4. Circle number 27 on the Product Information Card.

HARDWARE & PERIPHERALS

For information on all hardware and peripherals advertised in this issue, circle number 2 on the Product Information Card. For information from individual advertisers, circle the numbers indicated below.

Apple: See our ad on pages 12-13. Circle number 20 on the Product Information Card.

IBM: See our ad on Cover 2-page 1. Circle number 29 on the Product Information Card.

Index Electronics: See our ad on page 61. Circle number 17 on the Product Information Card.

Memory Plus: See our ad on page 55. Circle number 19 on the Product Information Card.

Michael & Associates: See our ad on page 15. Circle number 21 on the Product Information Card.

FURNITURE & SUPPLIES

For information on all furniture and supplies advertised in this issue, circle number 3 on the Product Information Card. For information from individual advertisers, circle the numbers indicated below.

N.P.S. Inc.: See our ad on page 11. Circle number 24 on the Product Information Card.

SERVICES

For information on all services advertised in this issue, circle number 4 on the Product Information Card. For information from individual advertisers, circle the numbers indicated below.

Nestle-Beich: See our ad on page 2. Circle number 23 on the Product Information Card.

TEACHING and computers

January 1988
(Expires May 1)

PRODUCT INFORMATION

Use this card for free product information.

Name_____

Title/Responsibility_____

School/Institution_____

Address_____

City_____ State_____ Zip Code_____

Phone ( )_____

Please check an entry for each category.

1. Do you (or your district/college) plan to purchase Board Level Products in the coming year?

☐ Yes
☐ No

2. Please indicate the estimated budget you will allocate for this purchase:

a. ☐ Less than $5,000
b. ☐ $5,000 to $20,000
c. ☐ Greater than $20,000

3. Which computer system do you or your district/college use for administrative purposes:

a. ☐ IBM/MS-DOS Compatible
b. ☐ Apple II Series
c. ☐ Macintosh

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

TEACHING and computers

January 1988
(Expires May 1)

PRODUCT INFORMATION

Use this card for free product information.

Name_____

Title/Responsibility_____

School/Institution_____

Address_____

City_____ State_____ Zip Code_____

Phone ( )_____

Please check an entry for each category.

1. Do you (or your district/college) plan to purchase Board Level Products in the coming year?

☐ Yes
☐ No

2. Please indicate the estimated budget you will allocate for this purchase:

a. ☐ Less than $5,000
b. ☐ $5,000 to $20,000
c. ☐ Greater than $20,000

3. Which computer system do you or your district/college use for administrative purposes:

a. ☐ IBM/MS-DOS Compatible
b. ☐ Apple II Series
c. ☐ Macintosh

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

TEACHING and computers

January 1988
(Expires May 1)

PRODUCT INFORMATION

Use this card for free product information.

Name_____

Title/Responsibility_____

School/Institution_____

Address_____

City_____ State_____ Zip Code_____

Phone ( )_____

Please check an entry for each category.

1. Do you (or your district/college) plan to purchase Board Level Products in the coming year?

☐ Yes
☐ No

2. Please indicate the estimated budget you will allocate for this purchase:

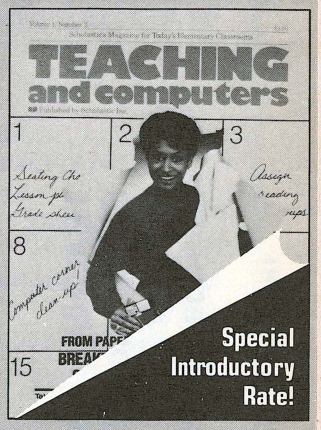
a. ☐ Less than $5,000
b. ☐ $5,000 to $20,000
c. ☐ Greater than $20,000

3. Which computer system do you or your district/college use for administrative purposes:

a. ☐ IBM/MS-DOS Compatible
b. ☐ Apple II Series
c. ☐ Macintosh

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

Isn't it time you got your *own copy each month?*



☐ **YES!** I want my own subscription to TEACHING & COMPUTERS, at the money-saving introductory rate.

☐ **Send me a year's worth:** Just $17.95 for 6 monthly issues. (Reg. rate: $23.95)

☐ **Send me a group's worth:** Just $12.95 when I order 5 or more subscriptions, to share. (NOTE: All Group Rate copies will be sent to me each month for distribution.)

Number of subs:

My Name_____

Title_____

School_____

School Address_____

City_____ State_____ Zip_____

Signature_____

If above is NOT your school address, please indicate school name and zip here:

School Name_____ Zip_____

H9703

In Canada, prices higher. Contact Scholastic, Richmond Hill, Ont. L4C 3G5.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 205 DALTON, MA

POSTAGE WILL BE PAID BY ADDRESSEE

TEACHING AND COMPUTERS
P.O. Box 513
Dalton, MA 01227

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 205 DALTON, MA

POSTAGE WILL BE PAID BY ADDRESSEE

TEACHING AND COMPUTERS
P.O. Box 513
Dalton, MA 01227

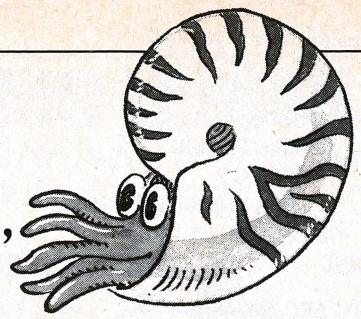
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 176 MAHOPAC, NY

POSTAGE WILL BE PAID BY ADDRESSEE

TEACHING AND COMPUTERS
Scholastic Inc.
P.O. Box 2040
Mahopac, NY 10541-9963

PROGRAM LISTING FOR "THE GOLDEN NAUTILUS"



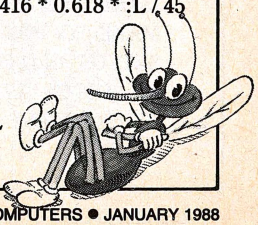
DIRECTIONS: The following program is for use with "The Golden Nautilus" story on pages 41 and 42. (The program works with IBM Logo. For Apple, Terrapin, and Krell, see page 59.) Load your Logo language disk, then type in these procedures exactly as they appear. Save on a separate disk under the file name NAUTILUS.

```
TO GOLD.NAUTILUS
   LOCAL "XY LOCAL "OLD.POS LOCAL
"CHAR LOCAL "X LOCAL "LIST LOCAL
"TOGGLE
   SETUP.NAUTILUS
   DRAW.NAUTILUS
   FINISH
END

TO SETUP.NAUTILUS
   CS HT
   SETPAL 0 SETPC 3
   SETTEXT 3 SETTC [2 0] CLEARTEXT
   MAKE "TOGGLE 0
   PR [WATCH THE SPIRAL GROW.]
   MAKE "LIST [1 1.05 1.1 1.16 1.23 1.3 1.4
1.5 1.6 1.7 1.8 1.9 2 2.1 2.2 2.35 2.5 2.65 2.8
3 3.2 3.4 3.6 3.8]
   MAKE "X 1
   PU SETPOS [-47 50]
   MAKE "XY POS
   SETH 0
END

TO DRAW.NAUTILUS
   SPIRAL :LIST
   MAKE "X 3.6
   SPIRAL :LIST
   MAKE "X 14.4
   SPIRAL :LIST
   MAKE "X 57.6
   SPIRAL BL BL BL BL :LIST
   SETPOS :XY SETH -90
   PD FD 140
END

TO SPIRAL :L
   IF EMPTYP :L [STOP]
   FD (:X * FIRST :L)
   MAKE "OLD.POS :XY
   MAKE "XY POS
   SETPOS :OLD.POS
   PD SETPOS :XY PU
   BK (:X * FIRST :L)
   LT 15
   SPIRAL BF :L
END

TO FINISH
   CLEARTEXT
   IF :TOGGLE = 0 [PR [DO YOU LIKE MY
CHAMBERED NAUTILUS?]]
   IF :TOGGLE = 1 [PR [HOW'S THAT
FOR A GOLDEN SPIRAL?]]
   IF :TOGGLE = 2 [PR [ANOTHER
GOLDEN SPIRAL!]]
   PR [PRESS ANY KEY WHEN YOU'RE
DONE.]
   MAKE "CHAR RC
   SETTEXT 6 CS CLEARTEXT
   SETPAL 1 SETPC 3 SETTC [7 0]
END

TO GOLD.RECTANGLE
   LOCAL "TOGGLE LOCAL "CHAR LO
CAL "LIST LOCAL "LENGTH
   SETUP.FOR.RECTANGLES
   RECTANGLE.DEMO
   INITIAL.RECTANGLE
   BIGGER.RECTANGLES 2 * 1.618 :LIST
   MAKE.THE.ARC
   FINISH
END

TO SETUP.FOR.RECTANGLES
   SETTEXT 12 HT CS CLEARTEXT
   SETPAL 0 SETPC 3 SETTC [2 0]
   MAKE "TOGGLE 1
   MAKE "LIST [[PR [FOR A THIRD RECT
ANGLE, PRESS ANY KEY.]] [PR [THERE'S
THE THIRD ONE. PRESS A KEY] PR [FOR
THE FOURTH.]] [PR [NUMBER FOUR.
WANT ANOTHER? HIT A KEY.] PR []] [PR
[ANOTHER ONE? PRESS ANY KEY.] PR []]
[PR [HOW MANY DO YOU THINK WE CAN
GET] PR [ON THE SCREEN? WE'VE GOT
SIX NOW.]] [PR [THAT WAS NUMBER
SEVEN. LET'S GO] PR [FOR EIGHT.]] [PR
[EIGHT IT IS. THEY'RE GROWING RAPID
LY.] PR [] MAKE "TOGGLE 0] [PR [NINE!]
PR []] [PR [TEN IN ALL! HOW MANY DID
YOU GUESS?]]]
END

TO RECTANGLE.DEMO
   PU SETPOS [-10 20] PD
   REPEAT 2 [FD 80.9 RT 90 FD 50 RT 90]
   PR [I'VE DRAWN A RECTANGLE WITH
THE]
   PR [PROPORTIONS OF A GOLDEN
RECTANGLE.]
   PR [] WAIT 90
   PR [TO BUILD THE NEXT GOLDEN
RECTANGLE,]
   PR [I ADD A SQUARE -- IN
GREEN!]
   PR [] WAIT 90
   SETPC 1
   FLIP.OUT.SIDE 0 80.9 15
   RT 90 WAIT 10
   REPEAT 3 [FD 80.9 RT 90 WAIT 10]
   FD 80.9 RT 180 WAIT 90
   PR [THEN I OUTLINE THE NEW GOLD
EN]
   PR [RECTANGLE IN BROWN.]
   WAIT 90 SETPC 3
   REPEAT 2 [FD 130.9 LT 90 FD 80.9 LT
90]
   WAIT 90 PR []
   PR [PRESS ANY KEY WHEN YOU'RE
READY TO]
   PR [SEE A WHOLE SPIRAL OF RECT
ANGLES.]
   MAKE "CHAR RC
END

TO FLIP.OUT.SIDE :N :LENGTH :ANGLE
   IF :N = 6 [FD :LENGTH STOP]
   FD :LENGTH WAIT 5 PE BK :LENGTH
PD
   LT :ANGLE
   FLIP.OUT.SIDE :N + 1 :LENGTH :AN
GLE
END

TO INITIAL.RECTANGLE
   SETTEXT 10 CLEARTEXT CS
   PU SETPOS [-50 40] PD
   REPEAT 2 [FD 2 * 1.618 LT 90 FD 2 LT
90]
   PR [THERE'S THE FIRST TINY RECT
ANGLE.]
   PR [PRESS ANY KEY TO DRAW THE
SECOND.]
   PR []
   MAKE "CHAR RC
END

TO BIGGER.RECTANGLES :X :L
   CLEARTEXT SETPC 1 RT 90
   REPEAT 6 [FD :X LT 90]
   WAIT 20 SETPC 3
   REPEAT 2 [FD (:X * 2.618 / 1.618) LT 90
FD :X LT 90]
   IF :TOGGLE = 0 [CT SETTEXT 3
MAKE "TOGGLE 1]
   RUN FIRST :L
   IF :X>125 [STOP]
   MAKE "CHAR RC
   BIGGER.RECTANGLES :X * 1.618 BF :L
END

TO MAKE.THE.ARC
```

(continued on page 46)

(continued from page 45)

```
   PR [NOW TO SEE THE ARC, PRESS
ANY KEY.]
   MAKE "CHAR RC
   PU SETPC 2
   SETPOS [-50 40] SETH 90 PD
   ARC.AWAY 2 * 1.618
END

TO ARC.AWAY :R
   IF :R > 200 [STOP]
   MAKE "LENGTH 3.1416 * :R / 20
   ARCL 9 9
   ARC.AWAY :R * 1.618
END

TO ARCL :N :ANGLE
   FD :LENGTH / 2
   REPEAT :N [LT :ANGLE FD :LENGTH]
   LT :ANGLE FD :LENGTH / 2
END

TO GOLD.TRIANGLE
   LOCAL "TOGGLE LOCAL "CHAR LO-
CAL "LIST LOCAL "LENGTH
   SETUP.FOR.TRIANGLES
   TRIANGLE.DEMO
   INITIAL.TRIANGLE
   BIGGER.TRIANGLES 2 * 1.618
   ADD.THE.ARC
   FINISH
END

TO SETUP.FOR.TRIANGLES
   HT CS SETTEXT 12 CLEARTEXT
   SETPAL 0 SETPC 3 SETTC [2 0]
   MAKE "TOGGLE 2
END

TO TRIANGLE.DEMO
   PU SETPOS [-20 30] PD
   SETH 90 TRIANGLE 30
   PR [I'VE DRAWN A TRIANGLE WITH
THE]
   PR [PROPORTIONS OF A GOLDEN TRI-
ANGLE.]
   PR [] WAIT 90
   PR [TO BUILD THE NEXT GOLDEN
TRIANGLE,]
   PR [I ADD ANOTHER TRIANGLE IN
GREEN.]
   PR []
   SETPC 1 WAIT 90
   FLIP.OUT.SIDE 0 48.54 18
   RT 144 WAIT 20
   FD 78.54 WAIT 20
   RT 144 FD 48.54
   RT 72 FD 48.54 RT 180
   WAIT 90
   PR [THEN I OUTLINE THE NEW GOLD-
EN TRIANGLE]
   PR [IN BROWN.]
   PR []
   WAIT 90 SETPC 3
   FD 78.54
   LT 108 FD 48.54
   LT 108 FD 78.54
   WAIT 90
   PR [PRESS ANY KEY WHEN YOU'RE
READY TO]
   PR [SEE THE WHOLE SPIRAL OF TRI-
ANGLES.]
   MAKE "CHAR RC
END

TO TRIANGLE :L
   SETPC 3
   FD :L LT 108
   FD 1.618 * :L LT 144
   FD 1.618 * :L LT 180
   WAIT 20
END

TO INITIAL.TRIANGLE
   SETTEXT 3 CLEARTEXT CS
   PU SETPOS [-50 50] SETH 54 PD
   TRIANGLE 2
   PR [HOW MANY TRIANGLES DO YOU
THINK WILL]
   PR [FIT? PRESS A KEY WHEN YOU'RE
READY.]
   MAKE "CHAR RC
   WAIT 30
   SUB.TRIANGLE 2
END

TO SUB.TRIANGLE :L
   SETPC 1 FD 1.618 * :L
   LT 144 FD 2.618 * :L
   LT 144 FD 1.618 * :L
   PU FD :L LT 108 PD
   WAIT 20
END

TO BIGGER.TRIANGLES :X
   TRIANGLE :X
   SUB.TRIANGLE :X
   IF :X > 75 [TRIANGLE :X * 1.618] [BIG
GER.TRIANGLES :X * 1.618]
END

TO ADD.THE.ARC
   CLEARTEXT
   PR [THERE WERE TEN TRIANGLES
ALSO!]
   WAIT 40
   PR [NOW COMES THE SPIRAL!]
   WAIT 40
   PU SETPOS [-50 50] SETH 54
   SETPC 2 PD
   ALL.ARCS 2
END

TO ALL.ARCS :L
   IF :L > 250 [STOP]
   MAKE "LENGTH 3.1416 * 0.618 * :L / 45
   RT 54
   ARCL 26 4
   LT 54
   ALL.ARCS 1.618 * :L
END
```



Can 1131 schools in Minnesota be wrong?

Minnesota was looking for a software package for its 906 elementary schools that would:

- Encourage students to explore ideas.
- Provide teachers with the classroom support they need.
- Strengthen the link between computers and the curriculum.

Their Choice? LogoWriter™

LogoWriter provides the perfect discovery environment.

It's the *only* Logo that combines Multiple Turtles, Word Processing, Programming, and comprehensive Learning Materials. Plus unsurpassed teacher support via workshops, newsletters, and a telephone hot line.

Teachers were so happy with LogoWriter, Minnesota decided to put it in all 225 junior high schools as well.

LOGO Writer™

Expanding the limits of learning.

Call for our catalog: **1-800-321-LOGO**
In Massachusetts and Canada, call collect 617-742-2990.

LCSI

LogoWriter is available for the Apple IIe, IIc, IIgs, IBM PC and PC jr, and the Commodore 64 computer.

Circle 28 on Product Info Card.

ELECTRONIC LESSON PLANS

COMPUTING IN THE CONTENT AREAS

NEW YEAR'S RESOLUTIONS

Curriculum Objectives:
Reviewing verb tenses
Computer Skills:
Inserting text with a word processor

January is traditionally a time for "turning over a new leaf." With this word processing lesson, students will brush up on the grammar of New Year's resolutions, and then compose resolutions of their own.

Preparation: Using your word processor, type in the NEW YEAR data file, below, and save it on a disk.

Discussion: Tell your students that January is named after Janus, the ancient Roman god of gates and doorways. Janus has two faces looking in opposite directions — back toward the past, and ahead to the future. Explain that people who want a fresh start for the new year often write New Year's Resolutions in January. A resolution is a promise to change something about yourself, or do things differently than you have in the past. For example, one student might decide to make a resolution that she will read a story to her sister every night. Another student might make the resolution to stop biting his fingernails.

Point out to your students that New Year's Resolutions need a particular type of verb — the future tense, for action that *will* happen but has not happened yet. Spend a few minutes reviewing the past, present, and future tenses of common regular and irregular verbs (but don't use the words in the VERB BOX, below).

Activity: Have each student take a turn at the computer to call up and work with the NEW YEAR data file. Remind students to save their completed work in a new file under their own name.

NEW YEAR Data File

Hi, my name's Lacka Dazy. It's been a very lazy year for me—but now I'm ready to turn over a new leaf. So I'm making two lists this New Year's Eve. The list called 1987 is to remind me of the way I did things in the old year. On the 1988 list are my resolutions for doing the same things better during the new year. Help me complete my lists by choosing a verb from the VERB BOX for each sentence, and typing it in its proper form in the blank provided. Each verb will be used twice. But remember! The 1987 list uses the verbs in the *past tense.* For the 1988 list, change those verbs to the *future tense.*

VERB BOX
clean
do
make
study
wash

1987 (past tense)
I ___ my bed once between Labor Day and Christmas.
I ___ three pages of a book when the television broke down last spring.
I ___ my room when the dog got lost in it.
I ___ the dishes only when I couldn't talk my little brother into doing them.
I ___ my homework every day — the day after it was due.

1988 (future tense)
I ___ ___ my bed everyday.
I ___ ___ at least one new book a month.
I ___ ___ my room once a week (whether it needs it or not!).
I ___ ___ the dishes whenever it is my turn.
I ___ ___ my homework on time for the rest of the year.

YOUR LIST
Now write three resolutions of your own for 1988. Be sure to use verbs in the future tense!

1. _____

2. _____

3. _____

WHEN YOU'RE FINISHED, SAVE THIS FILE UNDER YOUR OWN NAME. Happy New Year, and thanks for your help! —Lacka Dazy

Beth Smith
Fifth Street School
Bangor, ME

KEY WORD HIGHLIGHTS

If your word processing software has a feature that lets users highlight words, students can use it to test their reading comprehension skills. The next time your students write stories on the computer, have them trade stories with a partner and read their partner's story very carefully. After the first reading, they should go back and highlight the keys words in the story. Students can then use the highlighted words to give an oral report on their partner's story for the whole class.

— Mary Dalheim

MATH

COINEY ISLAND

Curriculum Objectives:
Applying money skills
Computer Skill:
Using a simple BASIC program

With this lesson, practicing money skills can be as fun as a day at the fair. Your students will use the worksheet on page 49 and the accompanying BASIC program to budget their way around "Coiney Island" — an imaginary amusement park complete with a snack bar and coin-operated rides and attractions. Students will begin their day with five dollars, and can stay at Coiney Island as long as they can stretch their funds. They'll soon find that careful math and consumer savvy guarantee a good time.

Preparation: Type in the COIN RETURN program listing on page 50 exactly as it appears. (The program is written for Apple computers; other computer brands may require minor modifications.) Make enough photocopies of the "Coiney Island" worksheet so that each student has at least one copy. Hand out the worksheet and go over it with your class.

Discussion: Explain to students that the worksheet represents the two main areas of the Coiney Island amusement park. The top half, marked "Food," is the snack bar, where kids can buy a treat to eat and get change at the same time. The bottom half, marked "Fun," is the midway, where all the rides and attractions require exact change. Each blank row represents a circuit through the whole amusement park.

You might demonstrate the worksheet with a hypothetical student named Nathan Famous. Nathan starts off Round 1 (in the top left corner) at the snack bar with five crisp dollar bills and an appetite. He selects his snack (1 soda and 2 pretzel sticks) by marking a 1 and a 2 in the appropriate squares. Then he adds up the total (63¢ + 22¢ + 22¢ = $1.07) and enter $1.07 in the Total square. In the next square, "Dollars Paid," Nathan writes $2.00 — the number of dollar bills he hands to the snack bar cashier. Then he subtracts the total ($1.07) from the amount paid ($2.00) to find the "Change Due" (93¢) and writes it in the appropriate space. Next, Nathan goes to the computer and enters this same "Change Due" figure when the program instructs him to "enter the amount of change you desire." The computer tells Nathan the exact change he will receive from the cashier: three quarters, one dime, one nickel, and three pennies. Nathan jots down this information (abbreviated as 3Q, 1D, 1N, and 3P) in the "Coins Returned" space and in the Round 1 "Coins to Start" square on the bottom half of the worksheet.

Now it's time to enter the midway. Nathan can choose any ride or attraction for which he has the exact change. He picks a Regular Ride (50¢, or two quarters), a bounce on the Space Pillow trampoline (30¢, or one quarter and one nickel), and three tries at the Penny Toss (3¢, or three pennies). As he goes through the midway, Nathan marks each square selected with the number of times he tries that attraction. He also keeps a tally of the coins he's spent. After the Penny Toss, he's got one dime and a growling tummy, so he jots down "1D" in the "Coins Left" column, and goes back to the snack bar for refreshment and more change!

In the snack bar part of Round 2, Nathan's "Dollar Bills to Start" will be $3 — his original $5 *minus* the two "Dollars Paid" in Round 1. He'll select his next snack, total his costs, hand his dollar or dollars to the cashier, figure his change due, and consult the computer for his "Coins Returned." When he goes back down to the midway part of Round 2, his "Coins to Start" will be his new Round 2 "Coins Returned" *plus* the one dime he recorded under "Coins Left" in Round 1.

Nathan can make the rounds at Coiney Island as long as his money lasts, tell students. But he has to be sure and save a quarter to phone for a ride home at the end of the day!

Activity: After working through this sample worksheet with your students, distribute one or more blank worksheets to each student, load the COIN RETURN program on your computer, and throw open the gates to Coiney Island.

Nathan Annenberg
P.S. 246
New York, NY

BREAKFAST BARGAIN

Do students know which of their favorite cereals gives the most value for the money? Challenge them to find the lowest *unit price* (price per ounce) with an electronic spreadsheet such as *AppleWorks* (Apple Computer) or *EduCalc* (Grolier). The spreadsheet could be organized like this:

	A	B	C	D
1	Brand	Size	Price	Unit Price
2	Cheerios			
3	Rice Chex			
4	Special K			
5	Granola			

— Mary Dalheim

COINEY ISLAND WORKSHEET

COPY

NAME: _____

DIRECTIONS: Begin Round 1 in the FOOD section, with five crisp $1 bills. Buy a treat; the COIN RETURN computer program will tell you what coins you will receive as change. Take these coins down to Round 1 of the FUN section, where everything is coin-operated and requires EXACT CHANGE. When you've spent your coins, go back up to FOOD for Round 2: refreshment and more change! You can make the rounds at Coiney Island until your money runs out — but be sure and save a quarter to phone home!

FOOD	Dollar Bills to Start	Hot Dog 77¢	Soda 63¢	Cotton Candy 56¢	Popcorn 48¢	Pretzel Stick 22¢	Total	Dollars Paid	Change Due	COINS RETURNED (use computer)
START Round 1	**$5**									
Round 2										
Round 3										
Round 4										

FUN	Coins to Start	Super Ride 75¢	Regular Ride 50¢	Side Show 40¢	Space Pillow 30¢	Video Game 25¢	Souvenir 15¢	Fortune Teller 10¢	Penny Toss 1¢	COINS LEFT
Round 1										
Round 2										
Round 3										
Round 4										25¢ to phone home!

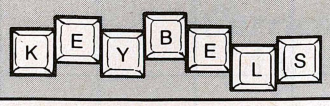
EXACT CHANGE ONLY

ELECTRONIC LESSON PLANS

"A well-designed and versatile educational management program ...This is the best phonics reading program I have seen."

LETTERS AND FIRST WORDS
The Computing Teacher, Feb. 1985

From the KIDS' CORNER
MAGIC CRAYON
LEARNING ABOUT NUMBERS



AND THE QUIZ MAKER
YOU'LL HAVE TO SEE TO BELIEVE!
ALL OF THE ABOVE™

C&C SOFTWARE
5713 KENTFORD CIRCLE • WICHITA, KS 67220
(316) 683-6056

Quality Educational Software
For Apple II Series Computers.
Apple is a registered trademark of Apple Computer, Inc.

The Quarter Mile

For kids of all ages.
Compete against *yourself* or others.

For the APPLE® II family (64K).
(Entirely in assembly language.)

Basic arithmetic, fractions, decimals, percents and more.

Extremely fast animation.
Vast expandability.

▼

"The wards [students] quickly became 'hooked' on it and it was difficult to get them to stop playing once they started.... The students not only enjoy using it but also are showing growth in areas I've had to reteach several times without success."
Rachel McCoy, Teacher
Oak Glen Youth Conservation Camp
(California Youth Authority), Yucaipa, CA

$45.00 *Demo:$3.00*
Site licensing agreement available.
Add 5% for s/h; CA residents add 6% sales tax.

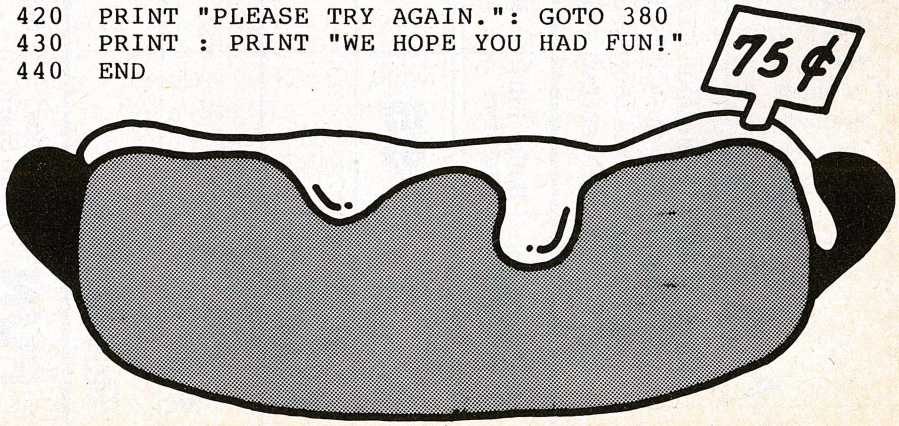
Call (800) 332-3638 ext. 107
In CA (415) 268-0804 ext. 107

Barnum Software
2201 Broadway, Suite 201T, Oakland, CA 94612

ELECTRONIC LESSON PLANS

COIN RETURN program listing for "Coiney Island"

```
5   HOME
10   PRINT   TAB( 5)"*****************************"
20   PRINT   TAB( 5)"* WELCOME TO COIN RETURN   *"
30   PRINT   TAB( 5)"*****************************"
35   PRINT : PRINT "COPYRIGHT SCHOLASTIC, 1987"
40   PRINT : PRINT : FOR T = 1 TO 2000: NEXT T
50   PRINT   TAB( 5)"JUST TYPE IN THE AMOUNT OF CHANGE"
60   PRINT "YOU SHOULD RECEIVE FROM YOUR DOLLAR."
70   PRINT "THE COMPUTER WILL FIGURE OUT FOR YOU"
80   PRINT "THE MINIMUM NUMBER OF QUARTERS, DIMES, "
90   PRINT "NICKELS AND PENNIES YOU'LL RECEIVE."
100   FOR T = 1 TO 4000: NEXT T: PRINT : PRINT
110   PRINT "PLEASE ENTER THE AMOUNT OF CHANGE "
120   PRINT "YOU DESIRE."
125   PRINT "(NO NEED FOR '$' SIGN OR DECIMAL."
126   PRINT "JUST TYPE THE NUMBER ITSELF.)"
130   INPUT C
140   IF C < 1 OR C > 99 THEN 160
150   GOTO 175
160   PRINT : PRINT "SORRY, BUT YOU MUST ENTER A NUMBER"
170   PRINT "FROM 1 TO 99 ONLY.": GOTO 130
175 Q =   INT (C / 25)
180 D =   INT ((C - Q * 25) / 10)
190 N =   INT ((C - Q * 25 - D * 10) / 5)
200 P = C - Q * 25 - D * 10 - N * 5
215   PRINT : PRINT : PRINT
220   PRINT "YOUR CHANGE OF ";C;" CENTS WILL"
230   PRINT "BE RETURNED AS:": PRINT : PRINT
240   IF Q = 0 THEN 270
250   IF Q = 1 THEN   PRINT "1 QUARTER ";: GOTO 270
260   PRINT Q;" QUARTERS  ";
270   IF D = 0 THEN 300
280   IF D = 1 THEN   PRINT "1 DIME  ";: GOTO 300
290   PRINT D;" DIMES  ";
300   IF N = 0 THEN 330
310   IF N = 1 THEN   PRINT "1 NICKEL  ";: GOTO 330
320   PRINT N;"NICKELS  ";
330   IF P = 0 THEN 360
340   IF P = 1 THEN   PRINT "1 PENNY": GOTO 360
350   PRINT P;"  PENNIES"
360   FOR T = 1 TO 2000: NEXT T: PRINT : PRINT
370   PRINT "TRY AGAIN? JUST TYPE 'YES' OR 'NO'."
380   INPUT R$
390   IF R$ = "YES" THEN  HOME : GOTO 110
400   IF R$ = "NO" THEN 430
410   PRINT "ARE YOU SURE YOU TYPED A 'YES' OR 'NO'?"
420   PRINT "PLEASE TRY AGAIN.": GOTO 380
430   PRINT : PRINT "WE HOPE YOU HAD FUN!"
440   END
```



SOCIAL STUDIES

STORY TREE BIOGRAPHY

Curriculum Objective:
Exploring the lives of historical figures
Computer Skills:
Writing with a story mapping program

A writing utility program, *Story Tree* (Scholastic, New York, NY) guides the student through "mapping out" a plot and then adding alternative scenarios. Although its primary use is in the Language Arts curriculum, *Story Tree* can also liven up your history class by giving students a fun way to explore the lives of important people. In this lesson, students will select a historical figure to research; report on that individual's life using *Story Tree*'s "main map" structure; and then create fictional "story branches" at key points in the figure's life.

If you don't have *Story Tree,* you can use your word processor for this lesson. See sample on page 52.

Preparation: If your students are not already comfortable with *Story Tree*, take time to review the program with them. For practice, assign "The Checkmate Mystery" tutorial; your students will later be able to use this format for their Biography Trees.

Copy the blank story map (right) on your board or an overhead projector transparency. Be sure to have on plenty of blank, formatted disks for students to save their biographies-in-progress. You might also compose a list of historical figures for your students to choose from; you can tailor your list to your particular curriculum and your classroom or library research resources.

Select one historical figure whose biography you can model mapping out with your students. In the sample discussion below, the historical figure is Dr. Martin Luther King, Jr., whose birthday on January 15 is celebrated as a national holiday.

Discussion: Begin the lesson with a discussion about *biography*—the story of a person's life. Point out that everyone has a life story, but people who play an important role in history are the most likely to have their life stories written. (When a person writes his or her own life story, it's known as *autobiography.*) You might say that we study biographies and autobiographies to learn more about important leaders, and to understand the connection between these individuals and events in history.

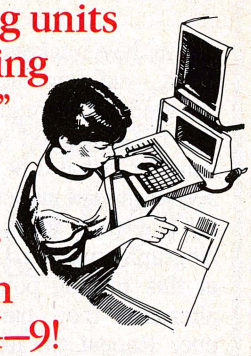
One way to get a clear picture of a person's biography is to "map it out," tell students. Using the blank story map on your board or overhead projector, explain that each box in a story map represents an important development in a story's plot; in a biography map, these boxes would indicate key events, critical decisions, or other "turning points" in the person's life story.

To demonstrate, fill in your blank story map with the biography of Dr. Martin Luther King, Jr. (Your King biography map might differ from the one here, depending on your own reference resources and the emphasis you place on each event.) As you fill in the map, talk with your students about Dr. King and his achievements, and why our nation now honors his memory each January.

When the biography map is complete, ask your students to think about other directions Dr. King's life

Yours FREE for 10 days!

33 teaching units with exciting "hands-on" activities for computer instruction in grades 4–9!



READY-TO-USE
COMPUTER LITERACY
ACTIVITIES KITS

For all computer literacy teachers in grades 4–9, here is a complete sequence of ready-to-use teaching units with 111 **reproducible** student activity worksheets...all organized in two separately printed spiral-bound volumes!

LEVEL I, for grades 4–6, provides 15 step-by-step teaching units with 58 reproducible worksheets to teach basic computer literacy concepts.

LEVEL II, for grades 7–9, provides 18 detailed teaching units with 53 reproducible worksheets to review basic concepts and apply computer skills.

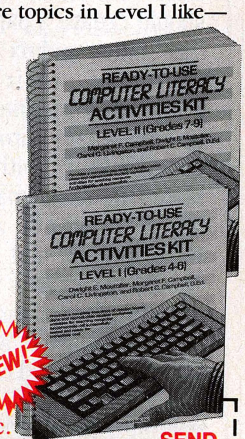
Successfully tested with students, each unit follows this standardized format: **Description of the unit • Preparation • Materials needed • Concepts • Vocabulary terms • Learning objectives • Activities.**

From "at-the-keyboard" activities to crossword puzzles, fill-in-the-blank activities, diagrams and drawings for labeling, quizzes and review tests, students explore topics in Level I like—

Computer Literacy Pre-Test
Keyboard Introduction
Entering & Running BASIC Programs
Performing Calculations
Programs with GOTO
Use of LET
Use of FOR...NEXT
Graphics

and in Level II—

How Computers Operate
Use of PRINT Statements
Math Operation Symbols
Use of String Variables
IF...THEN Statements
Use of READ...DATA
Storing Numbers
Word Processing



NEW!

Prentice-Hall, Inc.
Route 59 at Brook Hill Drive
West Nyack, NY 10995

SEND TODAY!

RUSH me a 10-day **FREE-TRIAL** exam copy of each **Computer Literacy Activities Kit** checked below. If I keep the Kit(s), I will send $24.95 plus postage and packing (and tax where applicable) for each one. Otherwise, I will return the Kit(s) and pay nothing at all.

#22 ☐ **LEVEL I—Grades 4–6** (76202-1)
#40 ☐ **LEVEL II—Grades 9–12** (76204-7)

Name .....
Address .....
City / State / Zip .....
S5056Y1(3)

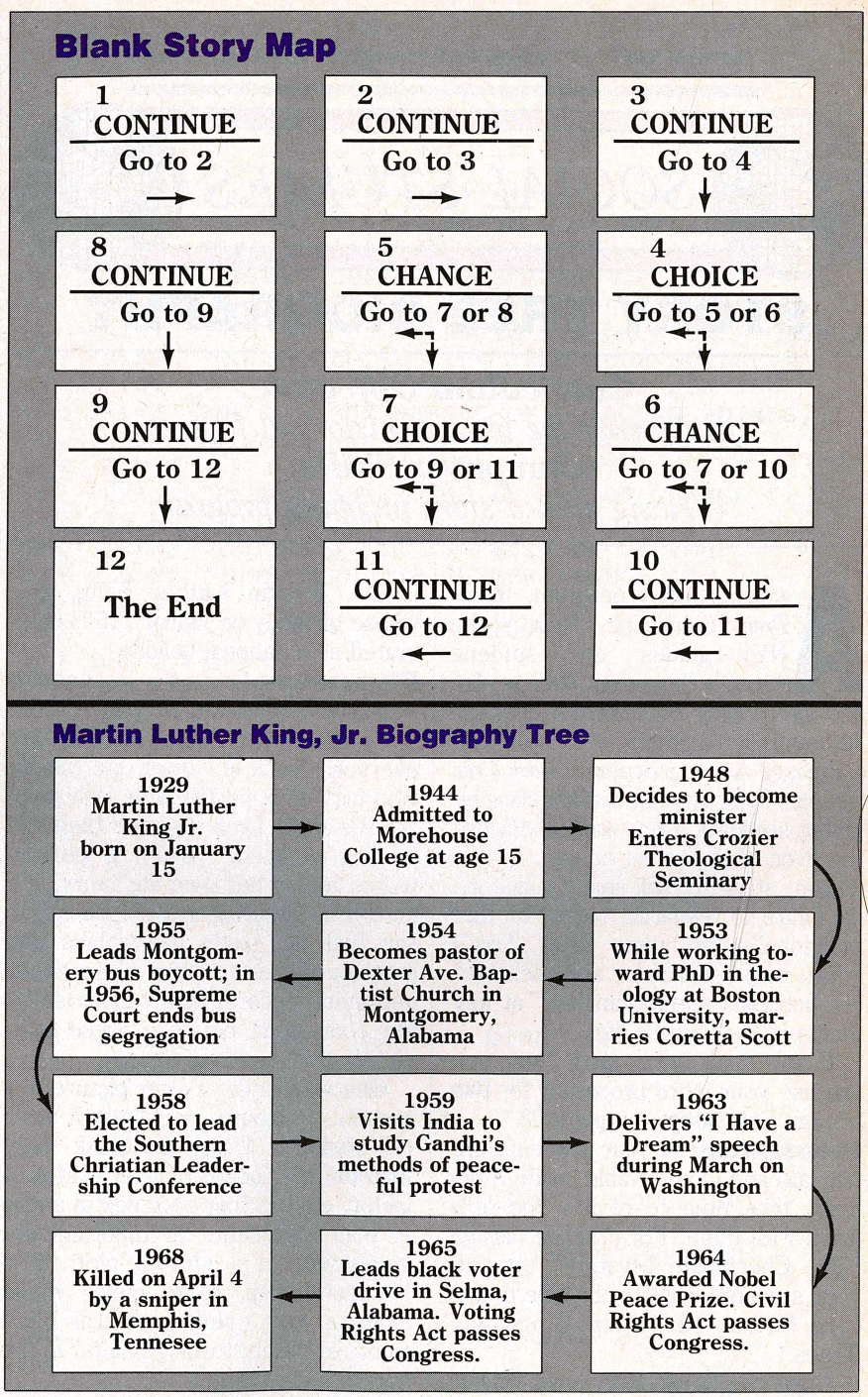
Send coupon OR circle Reader Service card numbers listed above to receive on-approval copies.

Circle 22 or 40 on Product Info Card.

might have taken at each turning point—and how history might have changed as a result. For example, Dr. King decided at age 18 to be a minister; what if he had chosen to be a veterinarian instead? Have students call out their ideas for an imaginary biography map for Dr. King beginning at this turning point, and draw this alternate map parallel to the real one. Repeat the procedure at several other turning points.

Tell students that if they were to computerize Dr. King's biography map using *Story Tree*, each event would represent a computerized *page*. Explain that for Dr. King's true life story, each page would *continue* in a straight line to the next; each imaginary *branch* in the biography tree would begin with a *choice* or *chance* page. To demonstrate, boot up *Story Tree* and have students gather around the computer while you input information from the Dr. King biography map on your blackboard (or, if time permits, assign students to practice inputting the information themselves).

Activity: Have each student or team of students select one historical figure from your list to research. Using the information they find in your classroom or school library, students should create a paper and pencil main map (with a box for each *continue* page) of their subject's true life story. Students should then make up imaginary story branches, and connect them with *choice* and *chance* boxes to their main biography map. When students are satisfied with their pencil and paper map, they should take turns using *Story Tree* to computerize their subject's biography. Have each student save his or her Biography Tree on an individual



CONTINUE	CHOICE	CHANCE	END
Go to page X	Go to page X or X	Roll one die. If 1-3, go to page X If 4-6, go to page X	The End

If you don't have the Story Tree software package, use your word processor to create page templates like these for your students to fill in.

ELECTRONIC LESSON PLANS

disk, then print it out and add a decorative cover sheet. When all of the biographies are complete, ask students to present their biographies to the class, or exchange disks to read each other's work on computer.

Sum up the lesson by choosing two or three biographies to focus on in a whole class discussion. In each case, ask students, how might the imaginary story branches have changed history? Would important historical events have happened differently—or not at all—if the subject's life story had taken an alternate turn or two?

IF YOU DON'T HAVE *STORY TREE:*

Use your word processor to set up four page templates like those on page 52.

Save each template under its appropriate file name (*Continue, Choice, Chance,* or *End).*

When students are ready to computerize their biographies, have them copy all four of these files onto their individual disks. They can then call up the templates as needed to complete their biography tree. After typing in the appropriate text and "go to" instructions, students should save each page under its page number.

To read the biographies on computer, your students will just need a little practice in word processing file handling. They'll also need a set of dice for proceeding from the *Chance* pages. ■

Tina Davis
Northern Hills Junior High
Topeka, KS

Circle 15 on Product Info Card.

CALL FOR FREE CATALOG

EDUCATIONAL RESOURCES

DISKETTES 38¢
IMAGEWRITER RIBBONS $2.99
MULTICOLOR RIBBONS $10.00

YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE • DISKETTES • ACCESSORIES

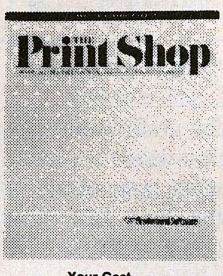
NATIONWIDE TOLLFREE
1-800-624-2926

IN ILLINOIS CALL
312-884-7040

SAVE UP TO 45% EVERYDAY!

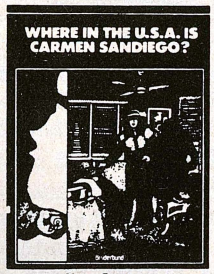
NOW YOU CAN BUY WHERE THE SCHOOLS BUY

- OVER 5,000 SOFTWARE TITLES AVAILABLE
- NATIONWIDE TOLL FREE SERVICE
- TRAINED EDUCATIONAL EXPERTS TO ASSIST YOU IN COURSEWARE SELECTION
- SCHOOL VERSIONS W/BACKUP & TEACHER MATERIALS

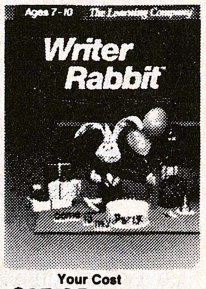


Your Cost
$27.95* $35.95*
APL/C64 IBM/IIGS
*Sch. Vers. Add $7.00

Your Cost
$45.95 APL IIGS
W/CLIPART
3 Pk. - Paint/Write/Draw $128.95



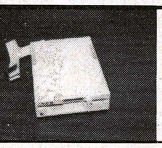
Your Cost
$25.95 APL/IBM
School Version $36.95



Your Cost
$27.95 APL/IBM
School Version $39.95

MAIL SCHOOL P.O.'S TO:
EDUCATIONAL RESOURCES
2360 HASSEL ROAD
HOFFMAN ESTATES, IL 60195

VISA MasterCard



5¼" DISK DRIVES FOR APPLE

1 Year Warranty
Parts & Labor
100% Compatible
Super Quiet
Adjustable Speed Control

Apple II, II+, IIe
Franklin Ace 1000
Apple IIc, IIGS
Apple IIe, UniDisk
Laser 128

$79.00
$79.00

Shipping & Handling $5.00

We have the *ABSOLUTE* Lowest Prices
on
CHECKMATE PRODUCTS

MultiRam IIe 64K	$109.00
MultiRam IIe 256K	$129.00
MultiRam IIe 512K	$154.00
MultiRam IIe 768K	$179.00
MultiRam RGB 64K	$139.00
MultiRam RGB 256K	$169.00
MultiRam RGB 512K	$194.00
MultiRam RGB 1 Mb	$244.00
MultiRam Plus 256K	$183.50
MultiRam Plus 512K	$216.00
MultiRam Plus 768K	$248.50
MultiRam Plus 1 Mb	$281.00
MultiRam CX 256K	$130.00
MultiRam CX 512K	$162.00
MultiRam CX+ 512K	$182.50

ALL NEW
GS MEMORY SAVER
$109.00

Extended 80 Column Card
For Apple IIe
$40.00
100% Appleworks Compatible
5 Year Warranty

Super Serial Card
100% Apple Compatible
$59.00
5 Year Warranty

Graphics Printer Card w/Cable
For Apple II+ & IIe
$49.00
5 Year Warranty

64K Buffered
Graphics Printer Card w/Cable
For Apple II+ & IIe
$85.00
5 Year Warranty

16K Card for Apple II+
$35.00
5 Year Warranty

128K Card For Apple II+
$85.00
5 Year Warranty

80 Column Card For Apple II+
$49.00
5 Year Warranty

Super Expander IIe
1 Mb Board with Software
256K — $89.00
512K — $114.00
1 Year Warranty

Super Expander GS
256K — $89.00
512K — $114.00
1 Year Warranty

Disk Controller Card
For Apple II, II+ & II
$39.00
5 Year Warranty

CPM Card for Apple II+ & IIe
$39.00
5 Year Warranty

Cooling Fan For Apple II+ & IIe
$29.95
With Surge Suppressor

Cooling Fan For Apple IIGS
$24.95
No Noise Interference

Numeric Keypad For Apple IIe
$34.95

Joystick For Apple IIe, IIc, IIGS
With Fire Button
$25.00
Same as Mach III

Replacement Keyboard
$55.00
For Apple IIe

5 Amp Power Supply
$49.00
For Apple II, II+ & IIe

We Ship All Prepaid Orders
FEDERAL EXPRESS
At No Extra Charge To You
Continental U.S. Only

RF Modulator
For
Apple II+ & IIe
$19.95

VISA & MASTERCARD — NO EXTRA CHARGE • DEALER PRICING • +$4.00 for Shipping • C.O.D. + $2.00

We carry only the Highest Quality products for your Apple. That's why we are the LARGEST and the BEST!

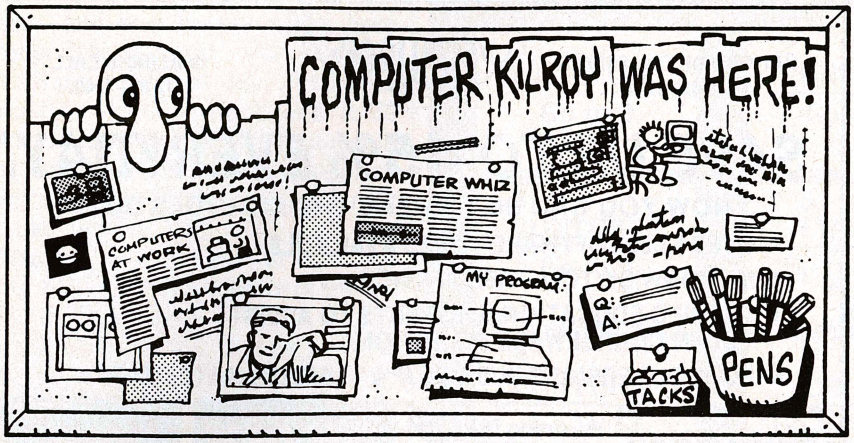
MEMORY PLUS DISTRIBUTORS, INC.
505 South 48th Street, Suite #104
Tempe, Arizona 85281
(602) 820-8819
(602) 830-6457
Serving Apple Users Since 1983

10 a.m. to 5 p.m.
M.S.T.
Mon - Fri.
University & School P.O. Accepted
20% Restocking charge on returned items

Circle 19 on Product Info Card.

MICRO IDEAS

QUICK COMPUTER TIPS AND ACTIVITIES



Clippings, pictures, slogans: anything computer related is okay by Kilroy!

CREATE A COMPUTER "GRAFFITI" BULLETIN BOARD

Let your students go wild expressing their thoughts about computers! Cover an unused bulletin board in your classroom with white or off-white construction paper. At the top of the board, post a sign that reads "Computer Kilroy Was Here!" along with a small sketch of Kilroy poking his head out over the top of a fence (see illustration). To one side of the board, keep a batch of felt tip pens, crayons, color pencils, blank white paper, and thumb tacks.

Explain to students that "Kilroy was here" was a popular expression, written very often as graffiti by U.S. soldiers and sailors overseas during World War II. The graffiti was, at one point, specifically used to indicate that "a serviceman was here," but later its meaning was generalized, coming to signify, simply, that "somebody was here."

Encourage your students to use this bulletin board to "play computer Kilroy." The kids can use the board to post articles, pictures, and poems related to computers; they can display their own computer graphics, and write in slogans and quotes related to computers — past, present, and future. There's only one rule: anything and everything that goes up on the bulletin board must be computer related.

Jackie Glasthal
New York, NY

WHAT A WHIZ!

Here's a great way to give your students an "instant" overview of modern computer history.

In 1944, tell children, the Mark I — an early computer made up of 78 adding machines and desk calculators connected by almost 500 miles of wire — was able to solve this math equation in a total of six seconds:

36475888241094536728841
+ 39018756477345244869905

Write the problem on the chalkboard, and ask a volunteer to start adding. Have the remaining students count out six seconds ("one and two and...") to give everyone an idea how short a time span six seconds actually is. How far did your student volunteer progress in completing the problem?

Although the Mark I was fast compared to "adding by hand," tell students, today's computers would leave it in the dust. To demonstrate, type the program listing below into your classroom computer. As you run the program, have students count the number of seconds it takes to print out an answer, from the time you press the RETURN key. Did your students even manage to count to two?

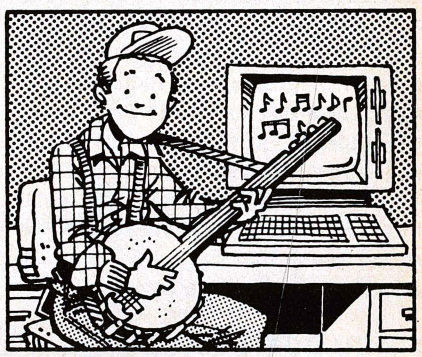
```
10 A = 3647588824109453672884 1
20 B = 3901875647734524486990 5
30 A + B = C
40 PRINT C
50 END
```

Anne M. Pacheco
Educational Consultant
Salem, MA

A "MUSICAL" LESSON IN BASIC

What do BASIC programming and music theory have in common? At first glance, not much. But, on closer examination, the concepts of *stanza* and *chorus* can actually be used to introduce young programmers to the function of the GOSUB routine.

To demonstrate, have students select a short tune that contains both stanzas and a chorus that is repeated a number of times during the course of the song. Using PRINT statements, your students can program the computer to "sing" the song by displaying its lyrics. But do they know how to save time and extra typing by using the handy GOSUB routine for the choruses?



As an example, type in and then RUN this short BASIC program, an abridged version of Stephen Foster's well-known song, "Oh, Susanna!" How many times is the chorus of the song repeated, as compared to the number of times it appears in the program listing? How would students alter the program, using the GOSUB routine, in order to have the computer repeat the chorus again?

```
10 HOME
20 PRINT "I COME FROM ALABAMA"
30 PRINT "WITH A BANJO ON MY KNEE."
40 PRINT "I'M GOING TO LOUISIANA,"
50 PRINT "MY TRUE LOVE FOR TO SEE."
60 GUSUB 1000
70 PRINT "I HAD A DREAM THE OTHER
NIGHT."
80 PRINT "WHEN EVERYTHING WAS
STILL."
90 PRINT "I THOUGHT I SAW SUSANNA"
100 PRINT "A-COMING DOWN THE HILL."
110 GOSUB 1000
120 END
```

RON ZALME

```
1000 PRINT "OH, SUSANNA! OH, DON'T
YOU CRY FOR ME."
1010 PRINT "I'VE COME FROM ALA-
BAMA"
1020 PRINT "WITH A BANJO ON MY
KNEE."
1030 RETURN
```

Wendy Caron
New York, NY

THIS IS NATIONAL NAME-THAT-MONTH MONTH!

Every year, the U.S. Congress passes a number of "commemorative resolutions" making each month a national something-or-other month, and every week a national something-or-other week. January, for example, is March of Dimes Birth Defects Prevention Month, National Hobby Month, National Soup Month, and National Volunteer Blood Donor Month, to name just a few. The process has been going on since November 26, 1789, when George Washington proclaimed a national day of thanks.

Since 1985, however, Congress has tried to cut back on the number of commemoratives it distributes. A senator wishing to create a commemorative must file a bid in either February, June or October. He or she must also gather at least 50 co-sponsors to approve the bill.

If your students were senators, ask them, what type of national holidays would they like to see approved? Take suggestions and write them on the chalkboard. Students may even want to make short speeches, justifying their ideas. Then have the whole class play "Congress" and vote on their twelve favorite suggestions.

Using a calendar creating software program, such as *Create A Calendar* (Epyx), *Print Shop Companion* (Broderbund), or *Principal's Assistant* (Mindscape), create a 1988 calendar for your classroom wall, designating each month one of the twelve favorites selected. Challenge students to find appropriate graphics to decorate the top portion of the calendar for each month.

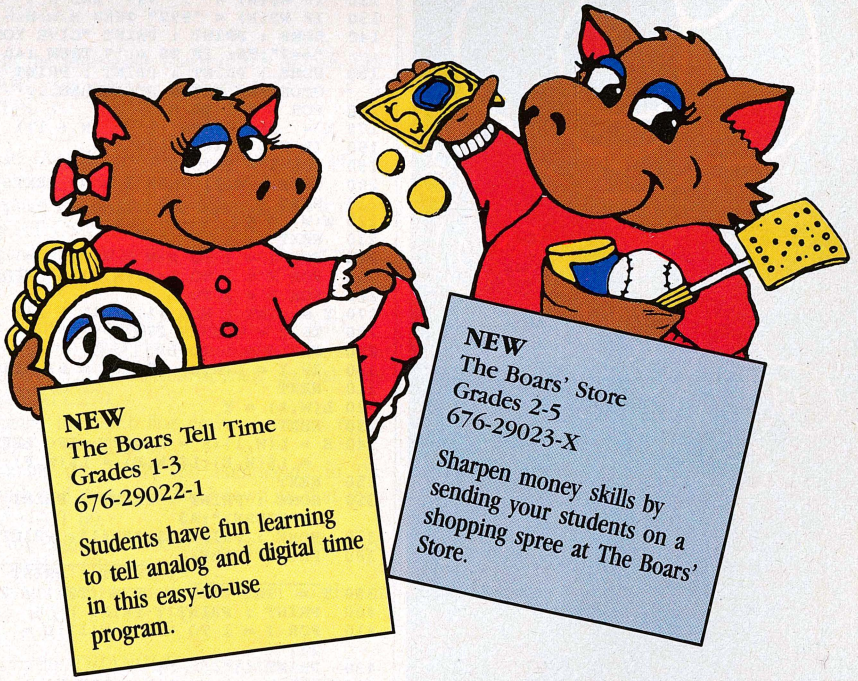
Mickey Revenaugh
New York, NY

(continued)

RANDOM HOUSE MEDIA

IT'S TIME TO GO SHOPPING WITH THE BOARS!™

Count on the Boars to bring your students to new levels of math understanding. These two new software learning programs for the Apple II Series, 64K, teach the real life skills of handling money while shopping, and telling time. The Boars' Store and The Boars Tell Time feature high resolution graphics, full-color animation, and are priced right at $39.95. Both programs include a comprehensive Teacher's Guide with classroom activities and Blackline Masters for additional reinforcement. Special packet of 10 coloring books for $5.95 is available for The Boars Tell Time.



NEW
The Boars Tell Time
Grades 1-3
676-29022-1

Students have fun learning to tell analog and digital time in this easy-to-use program.

NEW
The Boars' Store
Grades 2-5
676-29023-X

Sharpen money skills by sending your students on a shopping spree at The Boars' Store.

CALL NOW FOR YOUR FREE MICROCOMPUTER SOFTWARE CATALOG!

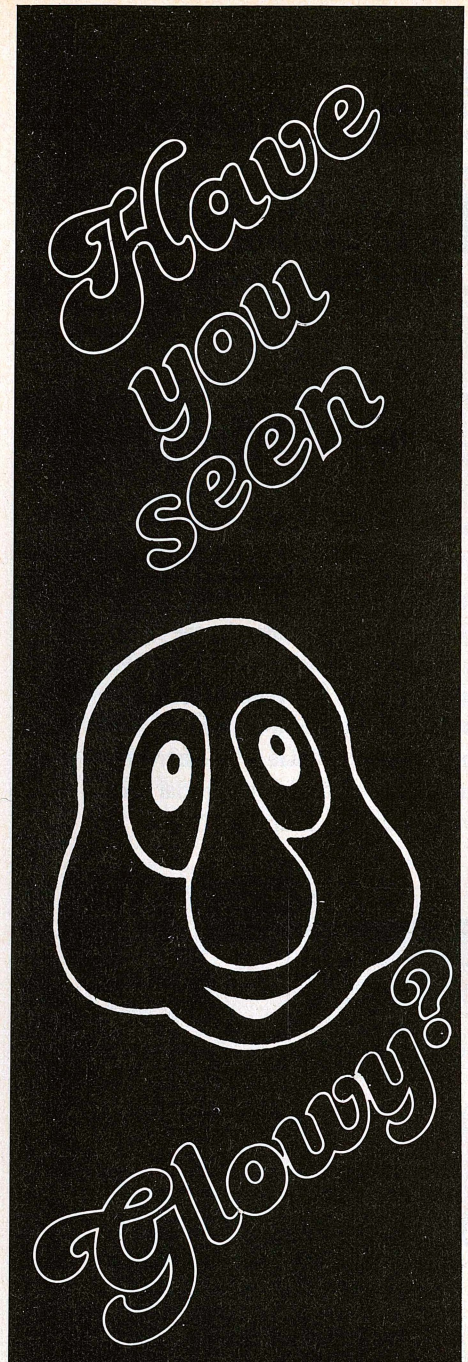
1-800-638-6460 ext. 5000
In Alaska, call collect 301-848-1900
In Maryland, call toll-free 1-800-492-0782

OR WRITE: Random House Media, 400 Hahn Road, Department 459, Westminster, MD 21157

COMPUTER LEARNING MONTH
OCTOBER '87

BOARS Characters are a trademark of Pelican Software, Inc.

Circle 25 on Product Info Card.



Hartley™

FOR INFORMATION CONTACT:
Hartley Courseware, Inc.,
133 Bridge
Dimondale, MI 48821

PHONE 1-800-247-1380
1-517-646-6458

WORD SCRAMBLE PROGRAM FOR APPLE COMPUTERS

This BASIC program for your Apple II series computer helps you create word scramble puzzles in a jiff. It also prints out an answer sheet in case you have a problem unscrambling your own puzzle!

Save the program on a disk under the file name SCRAMBLE. Each time you run the program, the computer will ask you to type in a word list (maximum 40 words) and then give the word list a title. The computer takes care of the rest!

To make copies of the puzzle for students, simply place a sheet of white paper over the answers before photocopying.

Mike Mitchell
Reaves Elementary School
Conroe, TX

```
1  REM FILENAME: WORD.SCRAMBLE
10  DIM W$(40),L$(40,25),L(40,25),W(40)
20 D$ =  CHR$ (13) +  CHR$ (4):F$ =  CHR$ (12)
30  HOME : PRINT  TAB( 14);"WORD SCRAMBLE"
40  PRINT : PRINT : PRINT "TO CREATE A WORD LIST, TYPE EACH ": PRINT "WORD
     FOLLOWED BY A RETURN."
50  PRINT "YOU MAY HAVE UP TO 40 WORDS.": PRINT "EACH WORD MAY HAVE UP TO
    25 LETTERS."
60  PRINT "TYPE 999 TO END YOUR LIST."
70  PRINT : PRINT : PRINT : PRINT "PRESS ANY KEY WHEN READY...";: GET A$
80  HOME :N = 1
90  IF N < 10 THEN  PRINT  TAB( 2);
100  PRINT N;". ";: INPUT "";W$(N)
110 L =  LEN (W$(N)): IF L = 0 OR L > 25 THEN 90
120  IF W$(N) <  > "999" AND N <  > 40 THEN N = N + 1: GOTO 90
130  IF W$(N) = "999" THEN N = N - 1
140  HOME : PRINT : PRINT "GIVE YOUR WORD LIST A TITLE.": PRINT : PRINT : INPUT
    "==>";T$: IF T$ = "" THEN 140
150  HOME : PRINT : PRINT : PRINT : PRINT "PLEASE WAIT.": PRINT : PRINT "W
    ORDS ARE BEING SCRAMBLED..."
160  FOR W = 1 TO N
170 X =  INT ( RND (1) * (N + 1))
180  IF X = 0 THEN 170
190  FOR I = 1 TO N
200  IF X = W(I) THEN I = N: NEXT : GOTO 170
210  NEXT
220 W(W) = X
230  NEXT
240  FOR I = 1 TO N:W = W(I):L =  LEN (W$(W))
250  FOR X = 1 TO L:L$(W,X) =  MID$ (W$(W),X,1): NEXT
260  FOR A = 1 TO L
270 Y =  INT ( RND (1) * (L + 1))
280  IF Y = 0 THEN 270
290  FOR C = 1 TO L
300  IF Y = L(W,C) THEN C = L: NEXT : GOTO 270
310  NEXT
320 L(W,A) = Y
330  NEXT
340 E = L(W,1):F = L(W,2): IF  LEFT$ (W$(W),2) = L$(W,E) + L$(W,F) THEN B$
    = L$(W,E):L$(W,E) = L$(W,F):L$(W,F) = B$
350  NEXT
360  HOME : PRINT : PRINT : PRINT : PRINT : INPUT "TURN PRINTER ON & PRESS
     <RETURN>";A$
370  HOME : PRINT D$;"PR#1": PRINT
380  PRINT "NAME:_____                                    DATE:_____
    _____";: PRINT : PRINT : PRINT
390 T =  INT ((75 -  LEN (T$)) / 2): PRINT  SPC( T);T$
400  PRINT : PRINT : PRINT
410  FOR I = 1 TO N:W = W(I):L =  LEN (W$(W)): IF I < 10 THEN  PRINT  TAB(
    2);
420  PRINT I;".   ";
430  FOR X = 1 TO L:S = L(W,X)
440  PRINT L$(W,S);
450  NEXT
460  PRINT  TAB( 20);: FOR Y = 1 TO 30: PRINT "_";: NEXT
470  PRINT : PRINT
480  IF I = 25 THEN  PRINT F$
490  NEXT
500  IF N <  > 25 THEN  PRINT F$
510  PRINT "ANSWERS TO: ";T$:L =  LEN (T$) + 12: FOR X = 1 TO L: PRINT "-"
    ;: NEXT : PRINT : PRINT
520  FOR I = 1 TO N:W = W(I)
530  IF I < 10 THEN  PRINT  TAB( 2);
540  PRINT I;".  ";W$(W)
550  NEXT
560  PRINT F$
570  PRINT D$;"PR#0"
580  HOME : PRINT : PRINT : INPUT "ANOTHER WORD LIST? (Y/N): ";A$
590  IF A$ = "Y" OR A$ = "YES" THEN  RUN
600  HOME : PRINT "BYE": END
```

Circle 16 on Product Info Card.

TEACHER'S HELPER

PROGRAM CONVERSIONS AND WORKSHEET ANSWERS

PROGRAM CONVERSIONS FOR: THE GOLDEN NAUTILUS (PAGE 42)

The procedures on page 42 are for the IBM version of Logo only. Here are step-by-step instructions for adapting the listing for use with Apple Logo, Apple Logo II, and Terrapin and Krell versions of Logo.

In the conversions that follow, the "first line" of each procedure is meant to indicate the line on which the name of the procedure is defined — the line that always begins with the word TO. For references to other line numbers, count down from there.

Apple Logo and Apple Logo II

Note: In some older versions of Apple Logo, there is not enough memory space in the program to allow you to load this many procedures into the computer at one time. To avoid this problem, save the procedures GOLD-.NAUTILUS, SETUP.NAUTILUS, DRAW-.NAUTILUS, SPIRAL, and FINISH under the file name NAUTILUS. Save the procedures GOLD.RECTANGLE, SETUP.FOR.RECTANGLES, RECTANGLE.DEMO, FLIP.OUT.SIDE, INITIAL.RECTANGLE, BIGGER.RECTANGLES, MAKE.THE.ARC, ARC.AWAY and ARCL under the file name RECTANGLE. Save the procedures GOLD-.TRIANGLE, SETUP.FOR.TRIANGLES, TRIANGLE.DEMO, TRIANGLE, INITIAL-.TRIANGLE, SUB.TRIANGLE, BIGGER-.TRIANGLES, ADD.THE.ARC, and ALL.ARCS under the file name TRIANGLE.

To run all three superprocedures used in the story (GOLD.NAUTILUS, GOLD.RECTANGLE and GOLD.TRIANGLE), you will always need to have the NAUTILUS file loaded into the computer. You can then either load the RECTANGLE or the TRIANGLE file as needed. But you may not be able to load all three of these files into the computer at one time.

Type in all the procedures that appear in the feature article. Make the changes that appear below as you are typing.

1. In the procedure SETUP.NAUTILUS:
- change the third line so that it reads only SETPC 4.
- change the fourth line so that it reads only CLEARTEXT.

2. In the procedure FINISH:
- change the eighth line down so that it reads only CS CLEARTEXT.
- change the next-to-last line so that it reads only SETPC 1.

3. In the procedure SETUP.FOR.RECTANGLES:
- change the second line so that it reads only HT CS CLEARTEXT.
- change the third line so that it reads only SETPC 4.
- in the long procedure line that begins MAKE "LIST, delete the command MAKE "TOGGLE 0, which appears toward the end of that line. Be sure *not* to delete the bracket that follows that command.

4. In the procedure RECTANGLE.DEMO:
- increase the WAIT commands in the sixth, ninth, fourteenth and nineteenth lines to 270.
- in the tenth line, change SETPC 1 to SETPC 2.
- increase the WAIT commands in the twelfth and thirteenth lines to 30.
- in the sixteenth line down, change the word BROWN to ORANGE.
- change the seventeenth line down to read: WAIT 270 SETPC 4.

5. In the FLIP.OUT.SIDE procedure, change the WAIT 5 command in the third line to WAIT 15.

6. In the procedure INITIAL.RECTANGLE, change the second line down so that it reads only CLEARTEXT CS.

7. In the BIGGER.RECTANGLES procedure:
- change SETPC 1 to SETPC 2 in line 2.
- change the fourth line down so that it reads: WAIT 60 SETPC 4.
- delete the sixth line down (beginning with IF :TOGGLE)

8. In the fourth line down of the MAKE.THE.ARC procedure, change SETPC 2 to SETPC 3.

9. In the SETUP.FOR.TRIANGLES procedure:
- change the second line down so that it reads only HT CS CLEARTEXT.
- change the third line down so that it reads only SETPC 4.

10. In the procedure TRIANGLE.DEMO:
- change the WAIT 90 commands in the sixth, sixteenth and twentyfourth lines, so that they read WAIT 270.
- change the tenth line down so that it reads SETPC 2 WAIT 270.
- change the WAIT 20 commands in the twelfth and thirteenth lines down so that they read WAIT 60.
- in the eighteenth line down, change the word BROWN to ORANGE.
- change the twentieth line down so that it reads WAIT 270 SETPC 4.

11. In the TRIANGLE procedure:
- change SETPC 3, in line two, to SETPC 4.
- change WAIT 20 in the sixth line down to WAIT 60.

12. In the INITIAL.TRIANGLE procedure:
- delete the SETTEXT 3 command in the second line.
- change WAIT 30 in the eighth line down to WAIT 90.

13. In the SUB.TRIANGLE procedure:
- change SETPC 1 to SETPC 2 in line 2.
- in the sixth line down, change WAIT 20 to WAIT 60.

14. In the procedure ADD.THE.ARC:
- change WAIT 40 to WAIT 120 in both the fourth and sixth lines down.
- change SETPC 2 to SETPC 3 in the eighth line down.

Terrapin and Krell

Type in all the procedures that appear in the feature article. Make these changes in the procedures, as you are typing:

1. In the procedure GOLD.NAUTILUS, change the second line so that it reads: LOCAL "XX LOCAL "YY LOCAL "OLD.X LOCAL "OLD.Y LOCAL "CHAR LOCAL "X LOCAL "LIST LOCAL "TOGGLE.

2. In the procedure SETUP.NAUTILUS:
- change the second, third and fourth lines as follows:

```
DRAW HT
PC 4
CLEARTEXT
```

- change the ninth and tenth lines as follows:

```
PU SETXY (-47) 50
MAKE "XX XCOR MAKE "YY YCOR
```

3. In the procedure DRAW.NAUTILUS, change the ninth line down so that it reads: SETXY :XX :YY SETH -90.

4. In the SPIRAL procedure
- change the second line so that it reads: IF EMPTY? :L STOP.
- change the fourth, fifth, sixth and seventh lines as follows:

```
MAKE "OLD.X :XX MAKE "OLD.Y :YY
MAKE "XX XCOR MAKE "YY YCOR
SETXY :OLD.X :OLD.Y
PD SETXY :XX :YY PU
```

5. In the FINISH procedure:
- remove the outer brackets in the third, fourth, and fifth lines.
- change the eighth and ninth lines so that they read simply:

```
CLEARTEXT
PC 1
```

6. In the procedure SETUP.FOR.RECTANGLES:
- change the second and third lines as follows:

```
HT DRAW CLEARTEXT
PC 4
```

- in the long procedure line that begins MAKE "LIST, delete the command MAKE "TOGGLE 0, which appears toward the end of that line. Be sure *not* to delete the bracket that follows that command.

7. In the procedure RECTANGLE.DEMO:
- change the second line so that it reads: PU SETXY (-10) 20 PD.
- change the tenth line down so that it reads simply PC 2.
- change the seventeenth line down so that it reads: WAIT 90 PC 4.

(continued)

CLASSIFIED

CLASSIFIED: Rates $15.95 per line with a 4-line minimum. Classified display is available at $170 per inch (one inch minimum, READER SERVICE NUMBERS available: $50 per issue (minimum 3-inch ad). FREQUENCY DISCOUNTS are also available. Ad copy and payment are due 35 days prior to the month you wish your ad to appear. Check or MO should be made out to ELECTRONIC LEARNING, Visa/MC accepted. All text for classified advertising is accepted at the discretion of the publisher. Services and products cannot be tested; listings do not imply endorsement by Scholastic. Send to: **CLASSIFIED EL/TC,** SCHOLASTIC Inc., 730 Broadway, New York, NY 10003. Or call 212-505-3629.

PERIPHERALS

The enhancers

Apple Mate 1200 Baud Modem	$159.
Citizen 120D Printer	$175.
FingerPrint + Touch Graphics Card	$84.
gsRAM: 1 Mb $201 512K $159 256K	$128.
High Output Power Supply 5A/6A	$52/$59.
MouseTalk - terminal program	$65.
MultiRam RGB: 320K/576K/1Mg.	$178/198/248.
Parallel Printer Card - Apricorn	$45.
Prac. Periph 1200/2400 modem	$130/$199.
Prime Bulletin Board System	$139.
ProTERM Terminal Program - Checkmate	$75.
RamFactor: 1 Mb $267 512K $207 256K	$183.
RamWorks 3: 1 Mb $239 512K $184 256K	$154.
Timemaster H.O. (][+,//e & gs)	$76.
TransWarp Accelerator (][+ and //e).	$210.
Z-80 Plus	$114.

Circle Reader Service Number for Free Catalog

Order Line: 1-800-445-1396

Visa, M/C * Ship $3/100 $5 min * Sch POs
Info/Tech: (303) 360-0273 * (303) 680-9959
P.O. Box 460268 * Aurora, CO. 80015
Prices subject to change

CIRCLE 7 ON PRODUCT INFORMATION CARD

APPLE COMPATIBLES LOWEST PRICES ANYWHERE!

IMEG/80 COL BD w/256K+Software (IIe)	$99
IMEG RAM BD for IIGS w/256K	$89
Above w/512K add $39. 1 MEG add $99.	
64K/80 COL BD. New Lower Power (IIe)	$35
16K RAM Board (II+)	$35
128K RAM BD. New Lower Power (II+)	$69
80 Column Board. Videx Comp. (II+)	$49
Super Serial Board (II+/e)	$49
Graphic Par BD w/6FT CBL (II+/e/gs)	$45
Z80 CP/M BD Microsoft Comp. (+/e/gs)	$38
Cooling Fan w/surge protect (II+/e)	$29
GS Super Cooling Fan (IIgs)	$25
Numeric Keypad. 16 Keys. (IIe)	$35
Joystick (Specify II+/c/e/gs)	$15
Joystick w/Fire on stick (+/c/e/gs)	$25
Mini Vacuum Cleaner w/ Attachments	$10
A/B Switchbox. Parallel or RS-232	$29
Disk Drive H/H (Specify II+/c/e/gs)	$129
Disk Controller Board (II+/e/gs)	$39
Eprom Programmer (II+/e/gs)	$49

ONE YEAR WARRANTY ON ALL PRODUCTS
CALL/WRITE FOR COMPLETE LIST
ADD $3 SHIPPING (Per ORDER. not per item)

NEXO DISTRIBUTION
914 East 8th Street, Suite 109
National City, CA 92050
(619) 474-3328 10am-6pm Mon-Fri

UNIV & SCHOOL P.O.'s WELCOME!
VISA/MC OKAY—C.O.D. ADD $2.00

CIRCLE 8 ON PRODUCT INFORMATION CARD

SERVICES/SUPPLIES

LASER/PC CARTRIDGE RECHARGING
SAVE $$$ Quality & Service Guaranteed!
Laser cart. recharge at $40.00 from
MAX-TONER for info: (507) 332-7579
1336 Central Ave, Faribault, MN 55021

COMMODORE CHIPS & REPAIRS AT LOW COST (eg. C64-$39.95). We are the largest/oldest Authorized Ctr. in the U.S. We do schools nationwide. Commodore chips at low prices (eg. 6510/6526-$8.95) 82S100/PLA-$10.95, all 901's-$9.95 and many others). Kasara Micro Inc., 38 Murray Hill Dr., Spring Valley, NY 10977, 800-248-2983, 914-356-3131.

SOFTWARE

FREE INFORMATION
BACK TO BASICS on Your Apple II
BASIC SKILLS COLLECTION—49 programs for less than $1 each. Designed for teaching Special Education, Remedial, and Beginning students fundamental skills in arithmetic, reading, spelling, geography, history, memory training, and much, much more. Write: Public Domain Library, Box 201-ADE,DUNCAN INSTITUTE, 18 Duncan Dr., New Port Richey, FL 34653 (813)-848-0413.

APPLE PUBLIC DOMAIN SOFTWARE
CAT. $4.00 or $5.00 CAT. & DEMO DISK
FREE DISK WITH CAT & DEMO DISK ORDER
B & L CONSULTANTS & SALES
Dept. E, Box 461, Wabash, IN 46992
(219) 563-7650 VISA & MC ACCEPTED

EDUCATIONAL SOFTWARE
APPLE / ATARI / COMMODORE / IBM
MINIMUM 30% DISCOUNT
Request our FREE Educational Catalog.
SOFTWARE SHUTTLE
PO Box 316, Dayton, OH, 45409-0316
(513) 293-2594

ROBOT ARM II
Teach robotics 3-12. For Apple II+/e/gs. Easy installation! Easy use! Includes **ROBOT ARM II** with Interface, software disk, operating manual, "Primer" with 10 projects. **Only...$249.95 Write: ROBOT ARM II,** 2756 Lake Road, Hilton, NY 14468.

DO YOU NEED TO TEACH COMPUTER LITERACY?
Use **COMPUTER**, a bingo-type game to develop computer awareness for 25 students simultaneously. Comes ready to play plus instructional aids and a test from:
H. M. Mudpies, Inc., PO. Box 37151
Raleigh, NC 27627-7151

CALL THE LEARNINGWARE LIBRARY
FOR OUR FREE SOFTWARE AND HARDWARE CATALOGS. School discounts and terms available.
23909-152nd Ave., Kent, WA 98042
(800) 227-3544, in WA (206) 630-9140

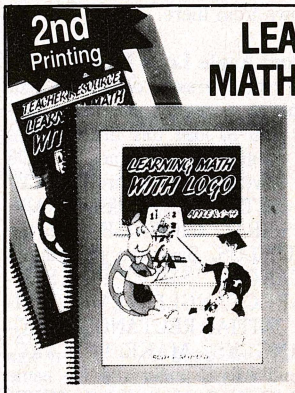
NASA FOOTAGE. Video series covering the space shuttle, planetary exploration & aviation. Info, please write Dichiera Productions, 3434 W. Dorothea Ave., Visalia, CA 93277 (209) 734-9583.

THE PERFECT SOLUTION
TAXCALC-87 for APPLE II's
Save $ preparing your return. Earn $ using a portable Laser 128. No tax knowledge or printer needed! Easy to use. Includes instructions + **New '87 TAX ADVICE & TIPS**. Calculates 1040 + most commonly used tax forms. Only $29.95 + $2 s/h (tax deductible).
• WRITE/CALL (305) 471-7786 for BEST PRICE •
LASER 128 + PERIPHERALS
PERFECT SOLUTIONS SOFTWARE
P.O.B. 19416, West Palm Beach, FL 33416-9416

SPANISH TEACHING SERVICES PRESENTS: EMILIANO ZAPATA, HERO OF THE MEXICAN REVOLUTION. 1.5 HOUR COLOR FILM. ORIGINAL SPANISH SOUNDTRACK WITH ENGLISH SUBTITLES. VHS OR BETA. INCLUDES LESSON AND QUIZ ANALYZING PLOT, VOCABULARY AND GRAMMAR. $50. SEND PURCHASE ORDER TO: S.TS. PO BOX 328, DELMAR, DE 19940 (302) 846-0364.

A FREE FLOPPY DISK listing hundreds of programs for humanities instruction and research, plus software reviews. Send $5 for P/H to Paradigm Press, PO Box 45069, Sarasota, FL 34277-4069

MacAnatomy
is an electronic atlas of human anatomy in MacPaint document form and can be easily modified and merged into MacWrite documents. Available on four volumes which can be purchased singularly or as a set.
MacMedic Publications, Inc.
5805 Westheimer, Houston TX, 77057
(713) 977-2655



LEARNING MATH WITH LOGO

- Integrates LOGO into Grades 4-7 Math
- Proceeds from CONCRETE to PICTORIAL to SYMBOLIC
- For Terrapin and Apple Logo
- Knowledge of LOGO is not required

"Everything the teacher needs is there. The students' text is complete in itself, well-illustrated and attractively presenting all that the learners need to know to master the basic concepts and go on to further challenges. October 1986, Computers in Education

"An excellent mathematics resource with an emphasis on exploring and discovering." September 1986, Logo Exchange.

OPTION 1
1 Student Text $24.95
1 **FREE** Teacher Resource

OPTION 2
15 or more
Student Texts @ $14.95 each
1 **FREE** Teacher Resource

All prices U.S. currency. Shipping and Handling $2.00
SEND ORDER AND MAKE CHECK PAYABLE TO : LOGO PUBLICATIONS
7 Conifer Cres., London, On., Canada N6K 2V3 1-519-657-9334

CIRCLE 9 ON PRODUCT INFORMATION CARD

CONNECT!

The **WRITE ON!** Library connects Literature and Writing in lessons encouraging students K-12 to model their own original work on the foremost authors in the English Language.

PROCESS!!

The **WRITE ON!** Library teaches **Process Writing** skills centering on prewriting, organizing, composing, editing, and revising in **500** carefully sequenced, curriculum-based lessons.

PUBLISH!!!

The **WRITE ON!** Library uses data disks operating on AppleWorks, MagicState, FrEdWriter, Apple Writer and Bank Street II & III for creating journals, poetry, stories, letters, reports, essays culminating with classroom publishing.

free catalog and ordering information

HUMANITIES SOFTWARE
P.O. Box 590727 • San Francisco, CA 94159
(415) 759-9324

CIRCLE 10 ON PRODUCT INFORMATION CARD

TEACHER'S HELPER

(continued from page 59)

8. In the FLIP.OUT.SIDE procedure:
- remove the brackets in the second line.
- change the third line so that it reads: FD :LENGTH WAIT 5 PC 6 BK :LENGTH PC 2.

9. In the procedure INITIAL.RECTANGLE, change the second and third lines as follows:
```
CLEARTEXT DRAW
PU SETXY (-50) 40 PD
```

10. In the BIGGER.RECTANGLES procedure:
- change the second line to read: CLEARTEXT PC 2 RT 90.
- change the fourth line to read: WAIT 30 PC 4
- delete the sixth line (beginning with IF :TOGGLE).
- delete the brackets about the STOP command in the eight line down.

11. In the procedure MAKE.THE.ARC, change the fourth and fifth lines to read:
```
PU PC 3
SETXY (-50) 40 SETH 90 PD
```

12. Remove the brackets that surround the STOP command in the second line of the ARC.AWAY procedure.

13. In the procedure SETUP.FOR.TRIANGLES, change the second and third lines to read:
```
HT DRAW CLEARTEXT
PC 4
```

14. In the procedure TRIANGLE.DEMO:
- change the second line to read: PU SETXY (-20) 30 PD.
- change the tenth line to read: PC 2 WAIT 90.
- in the eighteenth line down, change the word BROWN to ORANGE.
- change the twentieth line down to read: WAIT 90 PC 4.

15. In the TRIANGLE procedure, change the second line down to read simply PC 4.

16. In the INITIAL.TRIANGLE procedure, change the second and third lines to read:
```
CLEARTEXT DRAW
PU SETXY (-50) 50 SETH 54 PD
```

17. In the second line of the SUB.TRIANGLE procedure, change the SETPC 1 command to simply PC 2.

18. In the BIGGER.TRIANGLES procedure, the fourth line down should be changed to read: IF :X>75 TRIANGLE :X * 1.618 ELSE BIGGER.TRIANGLES :X * 1.618.

19. In the ADD.THE.ARC procedure, the seventh and eighth lines down should be changed to read:
```
PU SETXY (-50) 50 SETH 54
PC 3 PD
```

20. Remove the brackets that surround the STOP command in the second line of the ALL.ARCS procedure.

21. Add the following procedure:
```
TO WAIT :X
  IF :X = 0 STOP
  WAIT :X - 1
END
```

Note: When using the Terrapin or Krell versions of this program, be sure to clear the screen (CS) between each of the three superprocedures — GOLD.NAUTILUS, GOLD.RECTANGLE and GOLD.TRIANGLE.

COMING IN FEBRUARY/MARCH

S-s-s-uper Snakes Data Base

Your students will sort snake fact from fiction — and brush up on their critical thinking skills — with this spectacular science data base project.

Building Blocks

Turn your students into junior architects with our February/March poster. It's a tower of fascinating facts and hands-on activities, all with a high-tech twist!

"How can I work with every PC and student?

Press the **Guru System™** button and see the student's monitor image on your monitor...your keyboard is their keyboard...your headset/mike is connected instantly to the student's headset/mike. All this without rushing from station to station. Real-time one-on-one individualized help for every student in the classroom. Yes, the Guru remembers who asked for help, and in which order. Yes, you can talk to the entire class. Yes, the system is affordable. Just minutes to install, moments to master.

Call 800/262-GURU
Index Electronics
Campbell California
408/866-1343

Circle 17 on Product Info Card.

Looking for ways to put your computer to work helping you teach science? social studies? writing?

Here's all you need...from *Teaching and Computers!*

Here, at last, are the classroom computer products that so many teachers have been asking for.

Products that will help you teach social studies, science, language arts, math–and not just computer skills.

Products packed with lessons that students can do on their own; others that you can complete in 15 or 20 minutes; still others that knit seamlessly into your existing curriculum plans to help you use the computer more effectively.

The costs are low, the variety is tremendous, and the excitement of teaching with the help of a computer is all yours. From the pages of the #1 classroom computer magazine for K-8: *Teaching and Computers.*

Computer Poster Pack

Grades K-8

8 colorful computer-awareness wall posters (16 × 22), each with reproducible worksheets that reinforce concepts taught on the posters: computer history, parts of the computer, the keyboard, BASIC programming, Logo, and more. Teaching Guide includes worksheet answers and suggestions for additional activities. Reprinted from *Teaching and Computers* magazine.

Item No. XY39341 $11.95

Micro Puzzles

Grades 3-8

Forty pencil-and-paper puzzles for independent student work. Perforated blackline masters photocopy well and help teach programming basics, computer history, computing vocabulary, computer applications, and robotics. Published previously in *Teaching and Computers* magazine.

Item Number XY39308 $6.95

Science Lesson Plans

Grades 3-8

10 brief science lessons from Teaching and Computers magazine (energy, nutrition, plants, animals, space, the human body), each with a complete plan (including reproducible worksheets) and each with an easy-to-use BASIC program already on a disk for you. Includes how to make your own science quizzes on any topic.

Apple
Item Number XY39309 $19.95

Social Studies Lesson Plans

Grades 3-8

10 social studies lessons from *Teaching and Computers* magazine (world geography, Black history, the stock market, election campaigns), each with a complete plan including reproducible worksheets and each with a ready-to-use program on a disk to save you time. Includes how to make your own social studies quizzes.

Apple
Item Number XY39278 $19.95

30-DAY EVALUATION OFFER!

Story Writing Task Cards

Grades 3-8

32 Task Cards, plus a data disk, that help students use a word processor to develop story-writing skills: writing descriptions, developing plots and settings, vocabulary enrichment, more. Requires Bank Street Writer word processing program.

Apple
Item Number XY39310 *$19.95*

The Computer Ideabook

Grades 3-8

More than 30 self-contained lesson plans any classroom teacher an use with any major machine to integrate the computer into such curriculum areas as reading, language arts, social studies, math, science, music, and art. Many lessons include reproducible worksheets, task cards, recommended software, and program listings.

Item Number XY39046 *$17.95*

Holiday Computer Activities

Grades 3-8

Next time you celebrate a holiday with your class, let your computer join in! More than 200 self-contained activities (Thanksgiving, Fire Prevention Week, Election Day, Black History Month, Mother's Day, Bicycle Safety Week) with reproducible worksheets, task cards, and BASIC program listings. For use with any major computer.

Item Number XY39047 *$17.95*

Order Form

Scholastic Inc
PO Box 7502
Jefferson City, MO 65102

Please send the following materials. I understand that if any item proves unsuited to my needs, I may return it within 30 days for a refund or cancellation of my bill. (NOTE: All returns must be in resaleable condition.)

Title	Qty.	Price	Amount
XY39341 **Computer Poster Pack**		$11.95	
XY39308 **Micro Puzzles**		6.95	
XY39309 **Science Lesson Plans**		19.95	
XY39278 **Social Studies Lesson Plans**		19.95	
XY39310 **Story Writing Task Cards**		19.95	
XY39046 **The Computer Ideabook**		17.95	
XY39047 **Holiday Computer Activities**		17.95	
XY64621 **Bargain Pack: All 7 products**		79.95	

SAVE 33%

☐ Bill me (Min. order: $15; shipping and handling 8% extra, $2 minimum)
☐ Payment enclosed (Postage and handling free)

Total $

Name_____
School_____
Address_____
City/State_____ Zip_____
Sig._____

Bill to (if different):

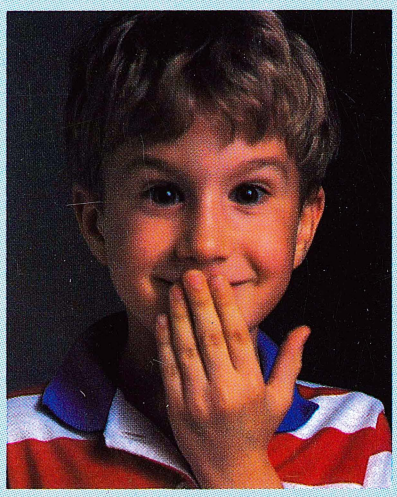
Name_____
Title_____
School_____
Address_____
City/State_____ Zip_____

Prices valid in U.S. only. In Canada, contact Scholastic, Richmond Hill, Ont. L4C 3G5.

SCHOLASTIC

Circle 41 on Product Info Card.

"My computer just talked to me!"



Announcing a breakthrough program for helping students learn to read and write: *Talking Text Writer,* from Scholastic and Street Electronics!

There is now a brand-new way your Apple computer can help your students learn to read and write.

It's called *Talking Text Writer,* and what makes it an important development for education is that it marries word processing with speech!

Your students type in their own words, their own stories, their own experiences...

... and *Talking Text Writer* says it back to them, aloud!

More than five years of research has proven that *Talking Text Writer* is a dramatically effective teaching tool for improving reading and writing skills, both among new learners and among remedial learners.

With this program, students not only see their words, their stories, their ideas on the computer screen, as with any word processor.

They also hear what they have created, one letter at a time, one word at a time, or only when they want a whole story repeated back to them.

This aural component – immediate feedback and lots of fun, too – is a key factor in the learning-to-read process as well as a powerful stimulus to writing.

Talking Text Writer: A single package that includes both the hardware and the software you need to experience this learning breakthrough in your own classroom and home.

- An amazing word processor that enables your Apple computer to speak back anything and everything your students type into it.
- Specially-created features for young learners, including large type (20-column) display option, a rainbow of color choices and large type printout capability.
- A Street Electronic speech synthesizer.*
- A User's Handbook that provides scores of classroom-tested suggestions for adapting *Talking Text Writer* to whatever reading program you are currently using... and to each student's individual needs.

Find out more about this innovative development, and what it can mean to your reading program. Just clip the coupon.

Circle 30 on Product Info Card.

*Echo + ™ for Apple IIe and Cricket™ for the Apple IIc

Yes! Send me more information about the breakthrough new program, *Talking Text Writer* and the Street Electronics synthesizer.

Name_____

Address_____

City_____

State/Zip_____

Mail to: Scholastic Software, P.O. Box 7501
2931 East McCarty Street, Jefferson City, MO 65102

This offer valid in U.S. only. Canadian Residents please write Scholastic Publications, 123 Newkirk Rd., Richmond Hill, Ont. L4C3G5 8TC01

Scholastic Software™
The Most Trusted Name in Learning

STREET ELECTRONICS CORPORATION